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ABSTRACT

An assessment of the North Dakota Science and Engineering Fair and an analysis of the background and careers of its finalists from 1951 to 1985 are contained in this report. The project's objectives were to: (1) compile a complete list of international fair participants (1951-1985); (2) study the subsequent geographic distribution of the participants; (3) examine the benefits associated with science fairs; and (4) evaluate whether participation influenced college and/or career choice. The survey was completed by 213 individuals representing 268 finalists for an 80% response rate. It was found that science fair participants were well educated with 67% having a Bachelors degree or better. The remaining were college students (28%) or high school students (5%). Less than 1% had only a high school education. Most (73.5%) believed that the science fair had some influence on their career choice with 51% of the sample selecting science professions. The value of participating in a science fair was rated high by 96% and all respondents indicated that they would encourage others to participate in science fairs. Generally, the survey results suggested that participation in science fairs may have influenced the finalists' career direction, education, and employment. Appendices supply the survey instrument as well as listings of the participants arranged alphabetically, by town, and chronologically with titles of projects submitted. (ML)

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The North Dakota Science and Engineering Fair-- Its History and A Survey of Participants

A Plan B Paper
Submitted to the Graduate Faculty
Botany/Biology Department
of the
North Dakota State University
of Agriculture and Applied Science
In Partial Fulfillment of the Requirements
for the Master of Science Degree
in General Science

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Linda Sue Olson

May, 1985
Fargo, North Dakota

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May 22, 1985
Date

Mr. Burton B. Brandrud, Registrar
Office of the Registrar - Old Main 100
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Fargo, North Dakota 58105

Dear Mr. Brandrud:

The duly appointed examining committee for Linda Sue Olson, candidate for the degree of Master of Science in General Science, has this day examined the candidate as to competence, both in thesis (special papers) and programmed course work. The undersigned members of this committee hereby signify approval of the candidate, and recommend that, subject to the regular requirements, the student be awarded the degree, Master of Science.

Harold R Scobey Chairman
Wm Woods
Gary K. Clambey
Carl P. Schmitz
Richard Zoellner

Copy to: Dean, Graduate School
Candidate
Advisor
Dean of College
Department Chairman

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Abstract

Thirty-four years have passed since North Dakota held its first Science Fair at Devils Lake Central High School in 1951. This study was initiated, in part, to compile names of past North Dakota Science and Engineering Fair (NDSEF) finalists (1951-1985). A survey to assess educational background, career choice, and benefits of the Science Fair was sent to 277 past ISEF entrants across the United States. Two hundred thirteen surveys representing 268 finalists were returned, making an 80% response rate. Most respondents (70.4%) had attended high schools with less than 100 students in their graduating class, while 75% had participated in science fairs voluntarily. Many attended the ISEF for the first time as juniors (29.1%). Thirty-three percent of the participants estimated the amount of money spent on their projects ranging from $50-$99. The cost was primarily absorbed by parents of participants (37.3%) and participants themselves (34.8%). Of the sample, 57.9% today are employed full-time, while 29.2% are students. Most (73.5%) believe the science fair had at least some influence on their career choices. Science professions were indicated by 51% of the sample. A minimum of a Bachelors Degree has been earned by 67% and 25% are currently enrolled in college or have attended some college. The value of participating in the science fair was rated high by 96%, and all respondents would encourage others to participate in science fairs. Travel was indicated as the greatest benefit of science fair participation (90.6%). Other benefits were the challenge of evaluation by professionals (83.1%), poise with evaluators (80.1%), enhancement of creativity (74.5%), and association with peers (69.2%). Science fair participation may have influenced career direction, education, and employment within this group of individuals, as well as created a volume of memories and fun.

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Acknowledgements

Sincere gratitude is extended to Dr. Donald Scoby for his guidance and encouragement. Special thanks are extended to Dr. Gary Clambey for his willingness to review manuscripts and offer meaningful suggestions. Appreciation is given to Dr. Scoby, Dr. Clambey, Dr. Donald Schwert and Dr. Harold Goetz for their suggestions in constructing the questionnaire and to Dr. Patricia Murphy for reviewing the final draft of the questionnaire.

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Introduction

Statement of Problem

No complete listing and follow-up of North Dakota Science and Engineering Fair (NDSEF) finalists has been prepared since 1958. An assessment of the science fair system has not been attempted, nor have the individuals involved been evaluated as to their educational backgrounds, careers, and their opinions of benefits associated with participation in the science fair. An attempt has been made to accomplish all of the aforementioned items through the use of a survey of past NDSSEF finalists.

Objectives

The main objectives of this project were to:

1. Compile a complete list of International Science Fair participants from North Dakota (1951-1985),
2. Study the subsequent geographic distribution of those individuals,
3. Provide an assessment of the science fair system including benefits associated with participation in science fairs, and
4. Evaluate whether this activity influences the choice of college and/or career.

Limitations and Recommendations for Further Study

The survey was completed and returned by 213 individuals,

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representing 268 finalists, for an 80% response rate, indicating a reliable sample of the group. Because surveys were mailed out, questions concerning completion of the survey were not answered. Recommendations for further study include of a similar survey of individuals representing each district at the NDSEF for comparison purposes. Due to inadequate state records, it may be worthwhile to ask respondents what awards each won at State and International Science and Engineering Fairs. It may be helpful to place maiden names and the year each finalists attended the Science Fair on the mailing labels for record-keeping purposes.

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History of the North Dakota Science and Engineering Fair

Establishment of the Science Fair

A year after the first National Science Fair was held in 1950, science fairs began in North Dakota. Information about this fair was circulated to the states through the National Science Service. Regions within each state could sign a contract with the newly-formed National Science Fair Association to exhibit at subsequent National Fairs. Julian Rolzinski, a science teacher at Devils Lake, North Dakota, signed such a contract, and in 1951, the North Dakota Science Fair was born. Rolzinski invited his colleagues to bring their eleventh and twelfth grade students to compete for participation at the national level (E. Kruschwitz, personal communication, 1985).

Beginning in 1943 there had been a movement within the state, to hold "science shows" and project displays. The individual first encouraging this activity was Harald Bliss, a science teacher at Grafton, North Dakota. The displays were sponsored by the Grafton Science Club, a member of the Science Clubs of America, and were predecessors of the North Dakota science fair program (personal communication from Harald N. Bliss to Earl Kruschwitz as cited in Frank, 1983).

District Science Fairs

When North Dakota's first Science Fair was held in Devils Lake, the state operated as a single region and advanced two finalists to the National Science Fair in 1951, 1952, and 1953. The Grafton Science Club

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(North Dakota Record, 1959) listed five finalists from North Dakota in 1953, however only two were entered in the National Science Fair register for that year. The other three students listed were visitors (Harald Bliss,personal communication, 1985). There were five regions established by 1954, with only eight finalists from North Dakota competing at the National Science Fair in 1955. Minot hosted the 1956 state fair with participants advancing from five districts: Northwest District (Minot), Southwest District (Mandan), East Central District (Devils Lake), Northeast District (Grafton), and Southeast District (Valley City). The host cities and state directors for North Dakota Science and Engineering Fairs from 1951 through 1985 are listed in Table 1. The South Central District (Jamestown) was added in 1957 bringing a total of six districts to the state science fair system. The seventh district was incorporated in 1963 creating the present system utilized in the state as indicated in Figure 1. An eighth district is currently being considered for the Northwest district.

More districts were added to the state organization as more students became involved in science fairs. In order to maintain quality competition, it soon became apparent that a system was needed to limit the projects to those considered adequate enough to compete at the state level (George Fors, personal communication 1985). A Junior Division was incorporated in 1956 involving junior high school students in grades 7 - 9 Each district was allowed to send four junior high entrants, in addition to the senior high participants, to the state fair (personal communication with Marcia Steinwand 1985). Today, Sixteen finalists from each division are allowed to advance to state competition from each district. There

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Table 1. Host cities and state directors for North Dakota State Science and Engineering Fairs.

1951	Devils Lake	Julian Rolzinski
1952	Grafton	Harald Bliss
1953	Devils Lake	Julian Rolzinski
1954	Fargo	Richard Voth
1955	Grafton	Harald Bliss
1956	Minot	Roy Robinson
1957	Valley City	Earl Kruschwitz
1958	Jamestown	George Barron
1959	Grafton	Harald Bliss
1960	Bismarck	Sister Maximine
1961	Valley City	Earl Kruschwitz
1962	Mandan	Julian Rolzinski
1963	Jamestown	George Barron
1964	Devils Lake	Loren Kjonass
1965	Dickinson	Wayne Chinberg
1966	Minot	Paul Ristvedt
1967	Wahpeton	Richard Clarens
1968	Grand Forks	Oscar Manz
1969	Bismarck	Bill Higgins
1970	Jamestown	Gordon Christiansen
1971	Mandan	Howard Nelson (Jim Coats)
1972	Grand Forks	Oscar Manz
1973	Dickinson	Charles Kordonowy
1974	Grand Forks	Oscar Manz
1975	Valley City	Leonard Gunsch
1976	Dickinson	Charles Kordonowy
1977	Bismarck	Dan Klein
1978	Devils Lake	Carol Witthoeft/Mitchel Rhen
1979	Grand Forks	Glenn Lyken
1980	Dickinson	Robert Todd/Marcia Steinwand
1981	Jamestown	Tom Olson/Dr. Jerry Knoblick
1982	Bismarck	David Nix/Gary Ketterling
1983	Bismarck	Cheryl Kalberer/Marla Behm
1984	Minot	Michael Thompson
1985	Minot	Om Maddock

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NORTH DAKOTA SCIENCE AND ENGINEERING FAIR

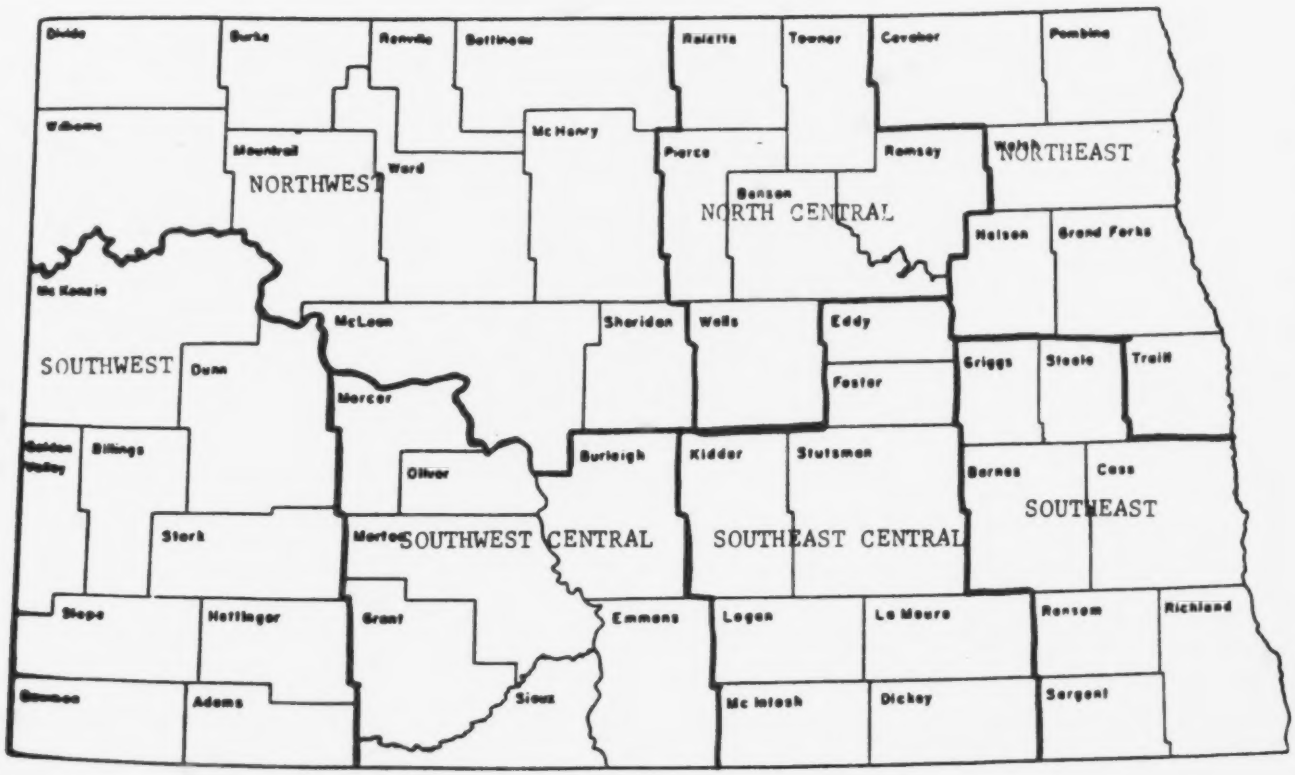

Figure 1. The seven districts presently utilized in North Dakota are Northwest, North Central, Northeast, Southwest, Southwest Central, Southeast Central and Southeast. Each district holds a district Science fair and advances 16 finalists to the State Science and Engineering Fair.

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will be 224 state competitors, 112 in each division as long as seven districts remain active in North Dakota.

Districts grew to a point that a system of screening projects became necessary. It is ambiguous at what point local fairs became independent of district fairs, but currently, most participants at district fairs have been evaluated once by the time they reach this point. There are no constitutional by-laws that require district competitors to participate at a local level before reaching district fairs (NDSEF Constitution). There are also no guidelines pertaining to the number of projects each local school can display at the district fair. The number of district participants, therefore, varies from year to year. (George Fors, personal communication 1985).

Competition

Any student in grade 7-12 may compete at a local fair. Grades 7-9 are categorized as Junior Division and 9-12 are categorized as Senior Division. Ninth grade students may choose in which division they prefer to compete. If the project is determined to be worthy of advancing, the student may compete with peers from the surrounding area at one of seven district science fairs where 16 finalists are chosen in each division. Many special awards are given by business and professional clubs as well as government agencies. In the Junior Division, the state Science Fair is the last level of competition. The 16 finalists from the Senior Division, however, may compete for an International Science and Engineering Fair berth.

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The 16 finalists from the senior division from each district meet at the state fair but do not compete with each other. Representatives of each district compete among themselves for two positions. It is these subsequent 14 qualifiers, a JETS (Junior Engineering Technical Society) sponsored finalist, and a finalist sponsored by the North Dakota Medical Association (NDMA), that comprise the North Dakota Delegation to the International Science and Engineering Fair (ISEF) (see Figure 2). Each receives a certificate of outstanding excellence plus an all expense paid trip to the National Science Fair. Two alternates to the ISEF from each district are selected and awarded certificates. These individuals are ranked and attend the ISEF in the event that one of the 16 finalists are unable to attend. An Outstanding Young Scientist of each year and an alternate are chosen annually. This individual receives the Truax-Traer Traveling Trophy. There are also alternates chosen for the JETS and NDMA awards. JETS sponsored both nondistrict finalists until 1978. At that time, NDMA assumed responsibility for one nondistrict finalist (personal communication Marcia Steinwand 1985). Many special awards are presented to deserving projects by service clubs, business and professional organizations and government agencies.

Judging

Judging of exhibits at local, district, state, and International science fairs is done by volunteers from educational institutions, professions, industry, and governmental agencies. States were encouraged to choose 50% boys and 50% girls to advance to the National Science Fair

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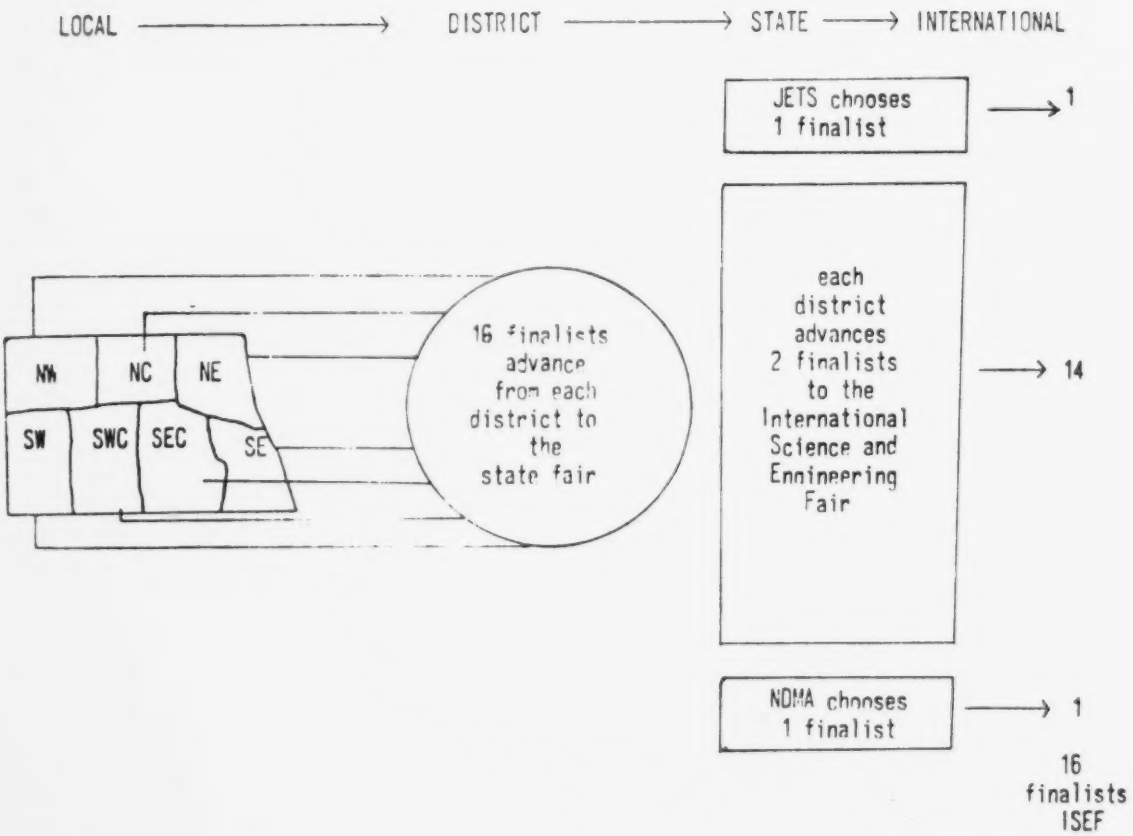

Figure 2. Students who win at local fairs advance to district fairs. Sixteen finalists are chosen at the district fair to attend the State fair. At the State fair 2 finalists from each district are chosen to represent the State at the ISEF in addition to a JETS and NDMA sponsored finalist.

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during the early years of competition. Judging of the boys' exhibits was done separately from exhibits submitted by girls. This system has not been utilized for a number of years (Earl Kruschwitz, personal communication 1985).

JETS

Oscar Manz of the University of North Dakota Civil Engineering Department organized the JETS (Junior Engineering Technical Society) program during the early 1960's. Annual Engineering Expositions were held by the ND JETS from 1963-1969. There were about 20 of these clubs in the state (Kiara Dooley, personal communication). Through the help of J. Donald Henderson formerly of the UND Physics Department, the Engineering Exposition was integrated with the science fair. Kaira Dooley, past North Dakota Department of Instruction Consultant, gives credit to Henderson for bringing "sophistication to the science fair" (K. Dooley, personal communication 1985). In 1971, two JETS finalists were added to the 14 state fair finalists attending the National Fair each year, adding depth to the North Dakota Science Fair (personal communication from Harald N. Bliss to Earl Kruschwitz as cited in Frank, 1983).

ISEF

The National Science Fair competition was opened to other countries in 1965, and the name was then changed to the International Science and Engineering Fair. Nine foreign nations, the District of Columbia, Puerto Rico, and 44 states are currently affiliated with the fair.

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Science Fair Association

The North Dakota Science Fair Association, which is the governing body of the State Science and Engineering Fair, was formed April 15, 1954. Harry Mason, Professor of Physics at Jamestown College, served as Executive Secretary for the first few years. Earl Kruschwitz, Valley City, N.D., was Executive Secretary from 1963-1982. The continuity of his leadership provided stability to the organization and allowed it to continue growing. Marcia Steinwand, Robinson, N.D. currently holds the position.

Academy of Science

The North Dakota Junior Academy of Science was founded in 1971 under the leadership of Donald Scoby, Professor of Biology at North Dakota State University. Each year this organization contributes prize money and recognition to state fair winners. These winners are invited to present a twelve minute oral presentation describing their projects at the annual North Dakota Academy of Science meeting (Franks, 1983). The $200.00 George A. Abbott Scholarship is awarded to the first place presentation, paid to a North Dakota college of the winners' choice, plus a $75.00 cash Dunbar Award. The second-place award winner receives the $100.00 George A. Abbott Scholarship paid to a North Dakota college of choice, plus the $50.00 cash Henderson Award. There may also be a variable number of Honorable Mention awards given. Dr. Scoby, a member of the Science Education Committee of the North Dakota Academy of Science, writes a proposal to the AAAS (American Association for the Advancement of Science) each year requesting funds. If approved, the proposal provides money

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which is made available to science fair students through the mini-grants program to be used for various aspects of their science projects. Mini-grants ranging from $10.00 - $110.00 have been awarded in the past.

Over the past 34 years North Dakota students, with their dedicated teachers and chaperones, have participated in what Dr. Scoby calls "the World Series of Science Fairs". North Dakota has had the largest per capita representation , and participants have earned many awards competing with other high school students across the nation and the world. More than 59 of 353 North Dakotans participating have received over 100 awards at the ISEF including first, second, third, and fourth place honors, as well as many special awards. In 1976 one of the North Dakota delegation, Philip Anfinrud, was chosen to attend the Second Annual Science Fair of The Americas at Sao Paulo, Brazil.

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Methods of Research

Acquisition of Names

Compilation of names and acquisition of addresses of North Dakota participants of the ISEF (International Science and Engineering Fair) (1951-1985) comprised a major portion of the research. Harald Bliss, retired Professor of Biology at Mayville State College and formerly a science teacher at Grafton High School, provided assistance in obtaining the names of early participants. In 1958, Bliss, with the Grafton Science Club, compiled a list of finalists who represented North Dakota from 1952-1958. Finalists from 1961 - 1981 were found in April or May issues of the now defunct "North Dakota Science and Mathematics Newsletter". These volumes were provided by George Fors, retired Science and Math Consultant for the North Dakota Department of Public Instruction. The years 1951, 1960, and 1982 - 1984 were obtained from Dorothy Schriver, Coordinator of the ISEF, in Washington, D.C.

Names of finalists and the high schools that they attended were acquired from these sources. Phone calls were made to principals and superintendents of the schools requesting names of parents or relatives and addresses (if they had moved and schools were aware of the change of address). Once the parents/relatives names were obtained, phone calls were made in an attempt to locate ISEF participants. In a few cases, the parent/relative was reached, yet the finalists' addresses were not obtained.

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Survey

A questionnaire (Appendix) was developed, and a total of 213 finalists, representing 336 finalists (some were multiple year winners), were initially mailed out. A total response rate of 80% (52% from the first mailing and 28% from the second mailing) was received.

The surveys were tabulated and analyzed using Telofax 2 software. The Telofax 2 software package allows a survey to be processed. First a copy of the questions is made on a blank disc and are tabulated for each respondent. The frequencies for all respondents can be printed out on a letter quality hard copy. Telofax 2 also allows cross-tabulations to be made with other pertinent information from the survey. This information is summarized in the next section.

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Presentation of Results

Participants

Founders of the National Science Fair and later the North Dakota State Science Fair intended that males and females would be equally represented at Science Fairs. The percentage of males/females participating at North Dakota State Science Fairs during the 1950's, 1960's, 1970's, and 1980's have fluctuated. Interestingly, the percentages were most similar at the onset of science fairs in the 1950's (53% males, 47% females). An increasing number of males became involved during the 1960's, and an all time male dominance occurred during the 1970's. Halfway through the 1980's there seems to be another shift toward equal numbers of male and female projects (Table 2). The total percentage of males/females who have participated through the course of science fairs is 61% males and 39% females, which was close to the percentage surveyed (61.9% males, 38.1% females), indicating that a reliable sample was surveyed. Also indicated in Table 2 are the number of students who displayed science projects (number of finalists) during each decade, how many of them were located (number contacted), as well as the number responding. There were 443 total participants, of which 353 are different individuals (90 individuals were multiple year winners). The number of surveys returned totaled 213 representing 268 individuals. Of the finalists, 76% (336) were found, and a total of 80% (268) which includes those who were multiple year winners, responded to the survey.

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Table 2. Breakdown by decade of total number of North Dakota Science Fair Finalists those contacted, the number responding to the survey, and and total percentage of males and females

Decade	Number of finalists	Number contacted	Number responded (%)	Males	Females
1950	71	48	42 (88%)	53%	47%
1960	134	89	71 (80%)	60%	40%
1970	158	124	96 (77%)	69%	31%
1980	80	75	59 (79%)	56%	44%
TOTAL	443	336 (95%)	268 (80%)	61%	39%

443 finalists have been chosen over the years 1951-1984.

90 individuals are multiple year winners

353 different individuals

76% of all finalists were surveyed

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All but 14 counties in North Dakota have been represented at past International Science and Engineering Fairs, as shown in Figure 3. Stutsman County has had 37 finalists, the greatest number of finalists, over the past 34 years. Counties having 20-29 finalists are Cass, Ward, Stark, Ramsey, Wells, and Walsh. The major town in Stutsman County is Jamestown, a community with 16,280 people and one high school. Fargo, the main city in Cass County, has a population of 61,308 and three high schools. Ward County's largest city is Minot with a population of 32,843, and has two main high schools. Dickinson, a city of 15,924 and Belfield, a community of 1274 are the two areas contributing the most science fair finalists from Stark County. Dickinson has two high schools and Belfield, one. In Ramsey County, Devils Lake (population 7442) has one high school, and has had the most science fair finalists from that county. Wells County's largest contributor has been the small community of Fessenden, population 761 which has one high school. Walsh County's two most productive science fair communities have been Grafton (population 5293) and Park River (population 1844), each with one high school (Rand-McNally Atlas, 1985) (See Appendix A for names and locations of North Dakota Counties). The strong emphasis in Jamestown, as well as many of these other areas, is largely due to dedicated instructors such as those from Jamestown: George Barron, Gordon Christianson, and most recently, Tom Olson. A breakdown of the North Dakota towns and the corresponding number of finalists are indicated in Table 3.

The majority of those surveyed came from high schools with small graduating class sizes: less than 25 students (17.3%), 25-59 students (29.1%), 50-99 students (24.0%), 100-199 students (13.3%), greater than

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NORTH DAKOTA SCIENCE AND ENGINEERING FAIR

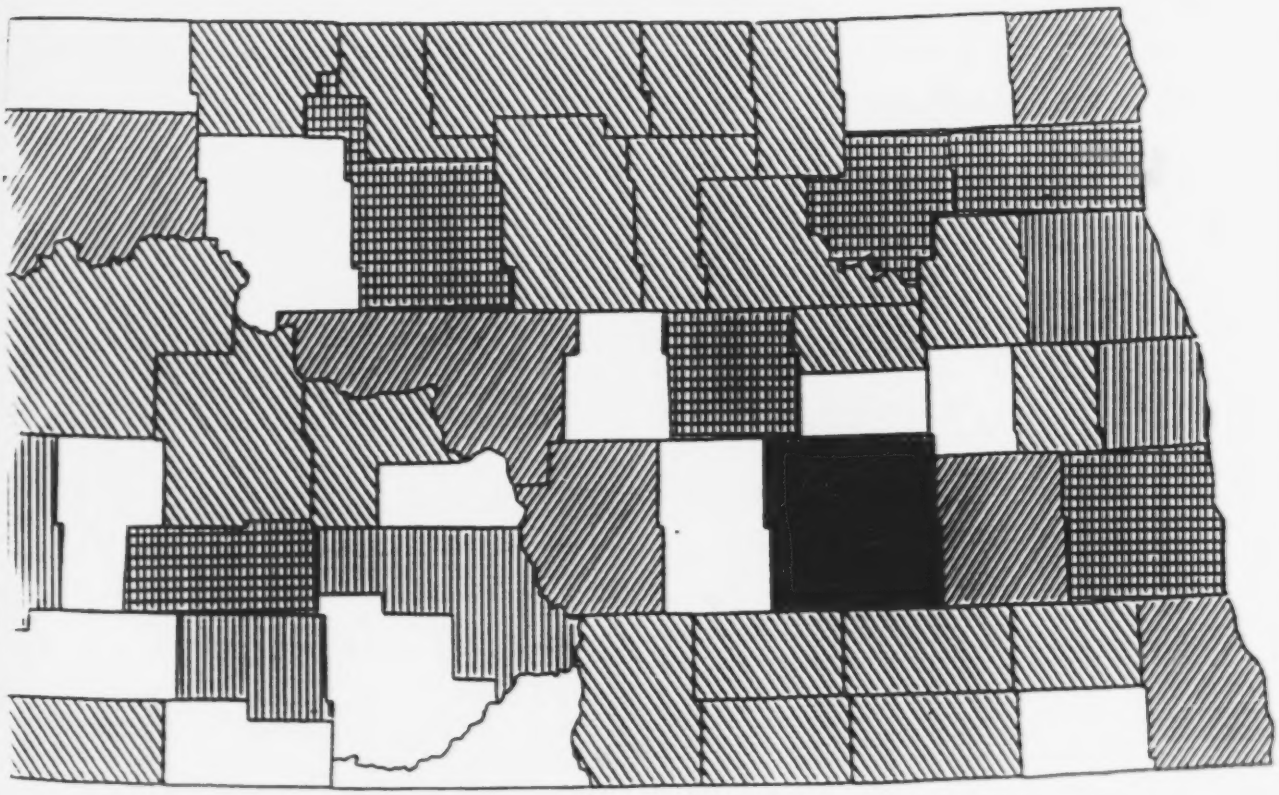

FIGURE 3. COUNTY DISTRIBUTION OF NUMBER OF HIGH SCHOOL STUDENTS PARTICIPATING IN THE INTERNATIONAL SCIENCE AND ENGINEERING FAIR (1951 - 1984)

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Table 3. North Dakota towns represented by International Science Fair participants

Jamestown	36	West Fargo	3	Killdeer	1
Minot	26	Beulah	2	Kulm	1
Williston	18	Casselton	2	Leeds	1
Devils Lake	17	Clifford/Galesburg	2	Linton	1
Dickinson	17	Colfax	2	Lisbon	1
Fessenden	17	Finley/Sharon	2	Midway	1
Bismarck	16	Gackle	2	Minnewauken	1
Valley City	16	Harvey	2	Mohall	1
Fargo	14	Hazen	2	Mott	1
Grafton	12	Hillsboro	2	Neche	1
Cavalier	10	Leonard	2	New Rockford	1
Wahpeton	10	Oakes	2	Pembina	1
Mandan	9	Park River	2	Portland	1
Turtle Lake/Mercer	9	Rugby	2	Rhame	1
Grand Forks	7	Sykeston	2	Riverdale	1
New England	7	Underwood	2	Rocklake	1
Fordville	6	Walhalla	2	Rolette	1
Beach	5	Bisbee	1	Rolla	1
Edmore	5	Bowbells	1	St. Thomas	1
Richardton	5	Central Valley	1	Scranton	1
Belfield	4	Cleveland	1	Starkweather	1
Aneta	3	Enderlin	1	Tolley	1
Bottineau	3	Golva	1	Velva	1
Hoople	3	Hatton	1	Westhope	1
Maddock	3	Hazelton	1	Wilton	1
Napoleon	3	Kenmare	1	Wishek	1
Watford City	3	Kensal	1		

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200 students (16.3%). The percentages of class sizes in North Dakota high schools are Comparable to the percentages found by the survey. Class sizes within the state are: less than 25 (35%), 25-49 (40%), 50-99 (13%), 100-199 (5%), and greater than 200 (7%) (Department of Public Instruction record, 1984-85). The most students come from class sizes of 25-49 students, which is also the largest class size by proportion in the state. Most of these individuals indicated that they had grown up in rural areas (33.0%) and 17.5% came from areas with less than 1000 residents. One fourth (25.8%) grew up in areas greater than 10,000 residents.

Demographics

Most of those returning surveys are living in North Dakota (42%). The next most popular states in which to reside are Minnesota (11%), California (7%), Colorado (4%), Washington (3%), and Texas (2%), as shown in Figure 4. North Dakota's ISEF finalists now live in 36 of the states and in Washington, D.C. Of those residing in North Dakota, most live in Cass County (Fargo), followed by Grand Forks County (Grand Forks). Morton County (Bismarck) and Ward County (Minot) have third and fourth largest numbers of finalists residing in their respective communities as shown in Figure 5. North Dakota natives tend to be family-oriented and remain close to "home", which may explain why so many have remained within the state. Employment opportunities, more desirable living environments, and more temperate climates may be attractions for areas such as Minnesota, California, Colorado, Washington, and Texas. Within the state the main metropolitan areas offering employment are Fargo, Grand Forks, Bismarck,

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NORTH DAKOTA SCIENCE AND ENGINEERING FAIR

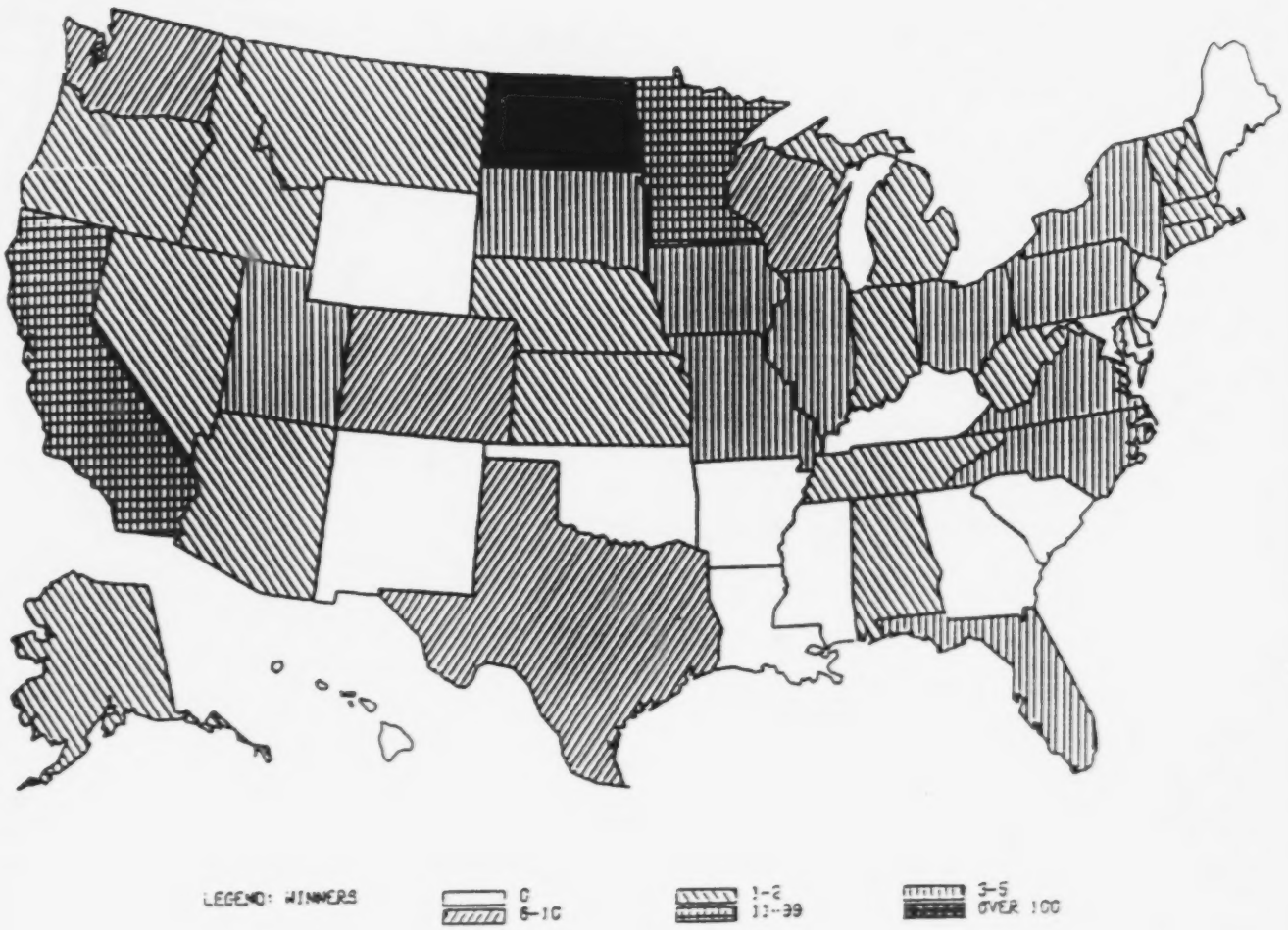

FIGURE 4. STATE SCIENCE FAIR FINALISTS
NATIONAL DISTRIBUTION
(1951 - 1984)

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NORTH DAKOTA SCIENCE AND ENGINEERING FAIR

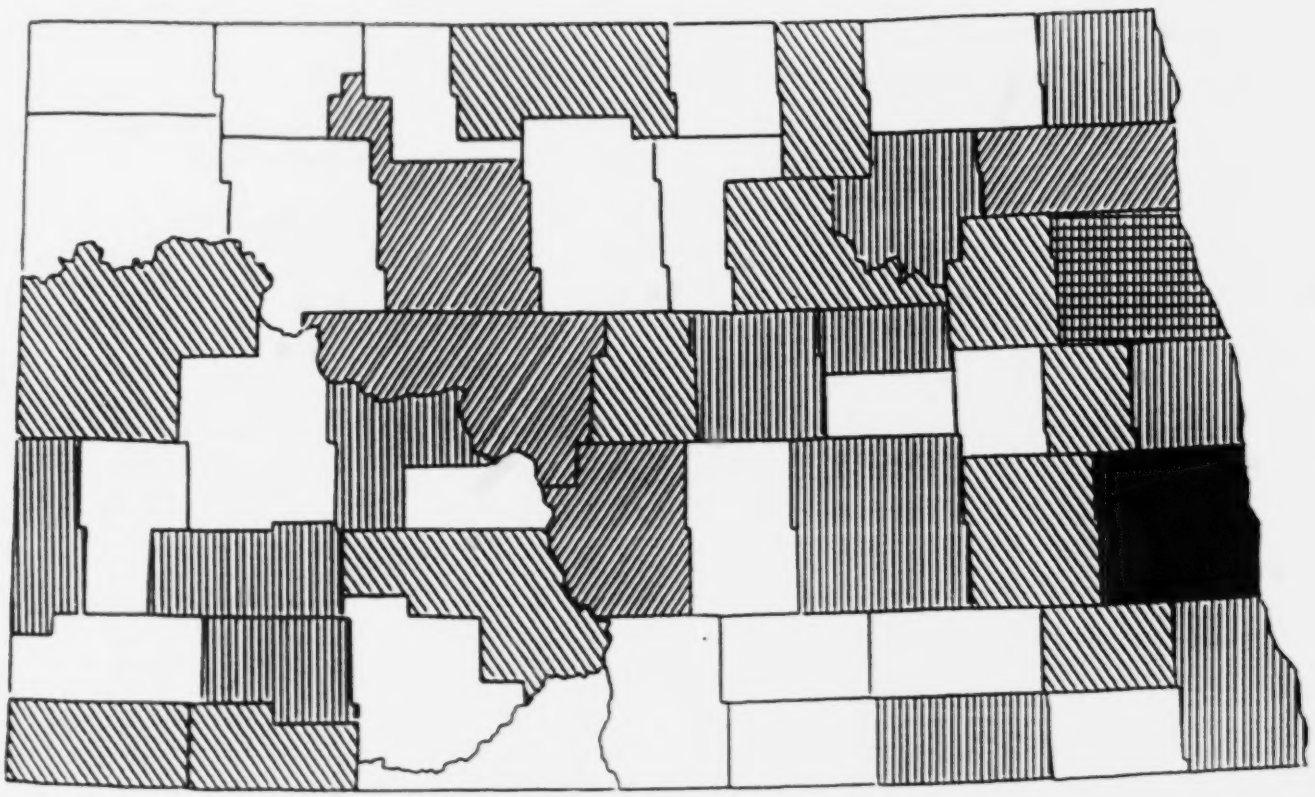

FIGURE 5. COUNTY DISTRIBUTION OF STATE SCIENCE FAIR FINALISTS REMAINING IN NORTH DAKOTA (1951 - 1984)

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and Minot which may explain the residency of those remaining in North Dakota.

Education

Determining the educational backgrounds of this group was one of the primary objectives of the study. A minimum of a Bachelors Degree has been earned by 67% of the sample (this includes 13% who have a professional Degree , 22% who have a graduate degree, 22% who have a Bachelors Degree, and 10% who are currently taking graduate courses). A professional degree includes degrees such as medicine, law, and chiropractics. Of the remaining, 25% have attended some college, (most of these are college freshmen), 5% are currently in high school, and 3% have completed high school. Population of the finalists' hometowns seems to have made little difference in the level of education obtained, as shown in Table 4. However, towns with less than 1000 had the lowest percentage of finalists in each category of education. Asked if their choice of a North Dakota college had been influenced by a judge from that college, 56.9% of the science fair finalists said no, 30.7% said it was not applicable, and 12.4% said yes.

Employment

Currently, 57.9% of those surveyed are employed full time. Students in high schools, colleges, or graduate schools make up 29.2%; 9.2% are employed part time, 2.6% are full time homemakers, 1% are unemployed, while 0% are retired. In all but one category of educational levels, (some college), the majority of finalists are employed full time. Those

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Table 4. Population of the area where North Dakota Science and Engineering finalists were raised compared with the the level of education earned

Level of education	Population of area finalists grew up			
	Rural	Small Town (<1000)	Town (1000-10,000)	City (>10,000)
Some high school	5 62.5%	0 -	2 25.0%	1 12.5%
Completed high school	4 66.7%	1 16.7%	- -	1 16.7%
Some college	13 31.0%	10 23.8%	9 21.4%	10 23.8%
Completed college	12 30.8%	7 17.9%	14 35.9%	6 15.4%
Some graduate school	3 20.0%	4 26.7%	4 26.7%	4 26.7%
Graduate degree	12 29.3%	5 12.2%	8 19.5%	16 39.0%
Professional degree	6 24.0%	3 12.0%	9 36.0%	7 28.0%
TOTALS	55 31%	30 17%	46 26%	45 26%

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with some college are appropriately students. Those in the three categories of least education (some high school, completed high school, and some college) are students. A summary of this cross-tabulation can be found in Table 5. It would seem that employment is proportionate to the amount of education earned. Between the sexes it was found that more males are employed full time (68.3%) than females (40.3%), while more females are students (36.1%) than males (25.2%) and twice as many females (13.9%) are employed part time as males (6.5%), indicated in Table 6.

Choice of Career

Respondents were asked whether their participation in science fairs had influenced their choice of career. Most (40.5%) said it had somewhat influenced their choice of career, 33% responded yes while 26.5% said no. Whether this group was as high school students, more inclined to the science area via the science fair, or that their participation in the science fair lent itself to a career in science is difficult to discern. Yet, for whatever reason, over 73% of the participants credit science fair participation at least somewhat for their choice of career. The level of education earned by respondents was cross-tabulated with whether the finalists thought their participation in science fairs had influenced their career choice. It showed that those with more education (i.e. completed college, done some graduate work, or earned a graduate degree or a professional degree), found science fair participation had influenced their choice of career (Table 7).

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Table 5. Present employment status of North Dakota State Science Fair finalists compared with the level of education earned

Level of education	Present employment status:				
	Part time	Full time	Unemployed	Homemaker	Student
Some high school	-	-	-	-	8
	-	-	-	-	100%
Completed high school	-	4	-	-	2
	-	66.7%	-	-	33.3%
Some college	4	10	-	2	27
	9.3%	23.3%	-	4.7	62.8%
Completed college	4	28	2*	1	4
	10.3%	71.8%	5.1%	2.5	10.2%
Some graduate work	3	9	-	-	4
	18.8%	56.3%	-	-	25.0%
Graduate degree	5	31	-	-	5
	12.2%	75.6%	-	-	12.2%
Professional degree	1	23	-	-	1
	4.0%	92.0%	-	-	4.0%

*Relocating

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Table 6. Employment status of male and female respondents of survey of North Dakota State Science and Engineering Fair

	Employment Status				
Sex	Full time	Part time	Homemaker	Student	Unemployed
Male	84	8	-	31	-
	68.3%	6.5%	-	25.2%	-
Female	29	10	5	26	2
	40.3%	13.9%	6.9%	36.1%	2.8%

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Table 7. Breakdown of education levels of North Dakota State Science Fair finalists compared with whether career choice was influenced by the Science Fair

Level of education	Science fair influenced career choice		
	Yes	Somewhat	No
Some high school	2 28.6%	5 71.4%	- -
Completed high school	1 16.7%	2 33.3%	3 50.0%
Some college	10 23.3%	19 44.2%	14 32.6%
Completed college	15 37.5%	15 37.5%	10 25.0%
Some graduate work	8 49.9%	5 31.3%	3 18.8%
Graduate degree	15 36.6%	19 46.3%	7 17.1%
Professional degree	8 33.3%	9 37.5%	7 29.2%

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Professions

The respondents' professions were subdivided into non-science and science categories. Those with science professions were further classified into three groups using Peterson's Annual Guides to Graduate School. Subdivisions of the science professions chosen are: biological, agricultural, and health sciences; physical sciences and mathematics; and engineering and applied sciences. A summary of the respondents' science professions by decade can be found in Table 8. Because most of those participating during the 1980's are currently students, the professions of participants from the 1980's have not been included for the overall responses for professions. Careers of science fair finalists from the first three decades, the 1950's, 1960's and 1970's are 51% science and 49% non-science. Of the 51% who have chosen science professions, 47% are biological, agricultural, and health sciences; 47% are engineering and applied sciences; and 6% are physical sciences and mathematics. During the 1950's, biological, agricultural, and health professions were most predominant while in the 1960's engineering and applied science jobs were chosen most often. The 1970's found an equal number of biological, agricultural, and health professions as engineering and applied science professions. In all three decades the field of physical sciences and mathematics have had the fewest number choosing careers in that direction. For all participants surveyed, science fair participation has at least somewhat influenced career choice for male participants more often than female participants (79% males, 64.4% females), as indicated in Table 9.

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Table 8. Science professions chosen by surveyed North Dakota Science and Engineering Fair participants from each decade

Decade	Category of science professions		
	Biological, Agricultural, & Health Sciences	Physical Sciences & Mathematics	Engineering and Applied Sciences
1950	7 50%	2 14%	5 36%
1960	14 44%	- -	18 56%
1970	20 48%	2 4%	20 48%
1980	3 7%	- -	- -
TOTAL*	41 47%	4 6%	43 47%

*Includes 1950's, 1960's, and 1970's

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Table 9. Consideration of North Dakota State Science and Engineering Fair influence on career choice by males and females

	Science fair influenced career choice?		
Sex	Yes	Somewhat	No
Male	38 30.6%	60 48.4%	26 21.0%
Female	28 36.8%	21 27.6%	27 35.5%

Voluntary vs. Required Projects

Most of the survey respondents were juniors (28.3%) or sophomores (26.8%) when they first were chosen as finalists of the North Dakota Science and Engineering Fair (NDSEF). Those attending for the first time as seniors made up 25.4% of the sample, and 19.5% said they were freshmen. This statistic forces discussion of a different but pertinent issue. It would seem that many high school science teachers and science fair coordinators have concern as to whether science fair participation should be voluntary or required. A majority (75.7%) of the finalists responding indicated that they had participated in the science fair voluntarily, while 24.3% had been required to compete. Keeping in stride with percentage of survey respondents, the majority of those who volunteered to participate in the science fair were juniors (30.3%) when first competing, while the majority of those required (39.5%) were sophomores. Apparently a required science fair project has involved a good share of sophomore students who had some success at the NDSEF. Sophomore level is also the last year science is required in most North Dakota high schools. This may possibly be an encouraging factor to instructors who currently do not require participation. Table 10 cross-tabulates the grade finalists were in when first competing at the ISEF with whether participation was voluntary or required.

Encouragement and Help

Encouragement to participate in the science fair for all respondents came predominantly from science instructors (51.9%); however, a

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Table 10. Grade level voluntary/required North Dakota State Science and Engineering Fair finalists were in when first competing at the International Science and Engineering Fair

	Grade in when first attending International Science Fair			
	9	10	11	12
Voluntary	28 21.2	30 22.7	40 30.3	34 25.8
Required	3 7.0	17 39.5	8 18.6	15 34.9

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combination of science instructor and parents was cited by 20.6% of the respondents. Other responses included other instructors (1.4%), parents (5.8%), and peers (1.4%). Similarly, for both voluntary and required finalists, encouragement came mainly from science instructors. It is noteworthy that more of those doing required projects (62.8%), were encouraged by science instructors than were those with voluntary projects (46.7%). Voluntary project finalists received greater encouragement from a combination of science instructors and parents (45.2%) than required project finalists (30.2%) (see Table 11). Seventy-five percent of the respondents indicated that their high school instructors had provided adequate assistance with their science projects, 25% indicated their instructors had not.

Males vs. Females

Of those who were finalists, more males than females indicated that their projects were voluntary (see Table 12). Of the required projects, it was found that most (32.6%) were done by students whose graduating class size was 25-49 students; 30.4% had less than twenty-five students in their graduating class. Most of those who participated voluntarily, graduated with classes of 25-49 students. The majority of both voluntary and required science fair project finalists came from schools whose class sizes were 25-49 students (Table 13).

Help with Projects

If the project was voluntary, it was found that 100% of the finalists had completed the majority of the project on their own without help from

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Table 11. Encouragement of science fair participation by North Dakota State Science and Engineering Fair finalists whose projects were voluntary/required

	Science fair participation was encouraged by				
	Science instructor	Other instructor	Parent	Peers	Others
Voluntary	63 46.7%	3 2.2%	7 5.2%	1 .7%	61 45.2%
Required	27 62.8%	- -	3 7.0%	- -	13 30.2%

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Table 12. Number and percentage of males/females whose North Dakota State Science and Engineering Fair projects were voluntary/required

Sex	Voluntary	Required
Male	100 80.6%	24 19.4%
Female	47 65.3%	25 34.7%

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Table 13. Size of North Dakota high school graduating class compared with number and percentage of those NDSEF finalists competing voluntrily or by requirement

	Size of graduating class				
	<25	25-49	50-99	100-199	>200
Required	19 13.2%	40 27.8%	36 25.0%	21 14.6%	28 19.4%
Voluntary	14 30.4%	15 32.6%	10 21.7%	4 8.7%	3 6.5%

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parents, teachers, or others. If, however, the project was required, 100% indicated that the majority of time spent on the project had been with the help of teachers and parents (Table 14).

Value of Projects

The value of doing a science fair project was rated high by 96.2% of all respondents, medium by 3.8%, and low by 0%. All respondents indicated that they would encourage their children or other students to participate in science fairs.

Cost

Indications are that costs of science projects over the years have gradually increased. During the first decade, the majority of finalists spent $21-$49 on their projects. In the 1960's, most (44.6%) of the respondents spent $50-$99 on project construction, and during the 1970's (38.6%) spent $50-$99 on project construction. The 1980's has, thus far, witnessed the majority (41.9%) of the students spending over $100.00. Through the years (Table 15) students are spending more money on science projects. It is interesting to note however, that in spite of this increase in spending, a winning science fair project can still be constructed for under $20.00 (Table 15). The cost of science project materials was paid for mainly by parents of finalists (37.2%) or by the finalists themselves (34.3%). Schools however, have been relatively insignificant in absorbing costs; only 5.8% of the respondents credited the schools for paying for materials. Twenty three percent indicated "others" had paid for science project materials. This included a

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Table 14. Who North Dakota State Science and Engineering Fair finalists had help from when completing science fair projects compared to whether they were done voluntarily or by requirement

	Time spent on science fair projects were				
	On Own	Help of teacher/ parent	Help of teacher	Help of parent	Help of others
Voluntary project	146 100%	-	-	-	-
Required project	-	49 100%	-	-	-

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Table 15. Cost of North Dakota Science and Engineering Fair projects by decade

Decade	≤$20	$21-49	$50-$99	≥$100
1950's	10 27%	14 38.8%	7 19.4%	5 13.8%
1960's	7 11%	20 30.8%	29 44.6%	9 13.8%
1970's	3 4.2%	17 24.3%	27 38.6%	23 32.9%
1980's	5 11.6%	10 23.3%	10 23.3%	18 41.9%

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combination of the finalists and their parents (8.2%). Other sources of income have included mini-grants, service clubs, communities, hospitals, and surrounding colleges.

Benefits

Respondents were asked to indicate whether they agreed, disagreed, or had no opinion about five benefits associated with participation in the science fair. Each statement was tabulated with whether projects were voluntary or required. The benefit that was agreed with most often by both voluntary and required project finalists was that of providing travel (97.7% of those required, 88.9% of those voluntary) (Table 16). Provision of poise with evaluators was agreed with by 86.0% of the required project finalists and 78.4% of the voluntary finalists (Table 17). The challenge of a professional's evaluation was agreed with by 83.7% of those required to do projects and 82.1% by those volunteering to do projects (Table 18). A majority of required competitors (73.0%) agreed that science fair participation enhanced creativity, while 76.1% of those who volunteered agreed (Table 19). The association with peers was a benefit agreed with by fewest of all respondents (62.8% of those required, 69.4% of those who volunteered) as a benefit of science fair participation (Table 20). But those who volunteered cited it as more often as a benefit than those who were required to participate. Those whose participation in science fairs was required agreed more often with three benefits (travel, poise with evaluators, challenge of professional evaluation) than those who volunteered. It would seem that in both groups of participants, science fairs offered travel, poise, and the challenge of a professional

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Table 16. Comparison of whether North Dakota State Science and Engineering Fair benefited travel for voluntary/required participants

	Science Fair participation benefited travel		
	Agree	Neither agree nor disagree	Disagree
Voluntary	120 88.9%	12 8.9%	3 2.2%
Required	42 97.7%	1 2.3%	- -

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Table 17. Comparison of whether North Dakota State Science and Engineering Fair provided poise with evaluators evaluators for voluntary/required participants

	Science Fair participation provided poise with evaluators		
	Agree	Neither agree nor disagree	Disagree
Voluntary	105 78.4%	22 16.4%	7 5.2%
Required	37 86.0%	6 14.0%	- -

Table 18. Comparison of whether North Dakota State Science and Engineering Fair provided the challenge of a professional evaluation for voluntary/required participants

	Science Fair provided challenge of a professional evaluation		
	Agree	Neither agree nor disagree	Disagree
Voluntary	110 82.1%	18 13.4%	6 4.5%
Required	36 83.7%	7 16.3%	- -

Table 19. Comparison of whether North Dakota State Science and Engineering Fairs enhanced creativity for voluntary/required participants

	Science Fair participation enhanced creativity		
	Agree	Neither agree nor disagree	disagree
Voluntary	102 76.1%	26 19.4%	6 4.5%
Required	31 73.0%	10 23.8%	1 2.4%

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Table 20. Comparison of whether North Dakota State Science and Engineering Fair provided association with peers for voluntary/ required participants

	Science Fair participation provided association with peers		
	Agree	Neither agree nor Disagree	Disagree
Voluntary	93 69.4%	34 25.4%	7 5.2%
Required	27 62.8%	15 34.9	1 2.3%

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appraisal. Other benefits indicated by respondents were: self confidence/self esteem, research and experimental design skills, speaking (communication) skills, and respect of peers (Table 21)..

Table 21. Other benefits finalists associate with participation in the North Dakota State Science and Engineering Fair

Self confidence	Research/design skills
Self image	Academic credentials
Scientific thinking	Library research
Communication skills	Goal setting
Meeting deadlines	Respect of peers
Challenging project	Improve writing skills
Feeling of achievement	Experience
Planning	Career skills
Interest in science fairs	
Show off skills, be criticized, and learn from errors	
Developed responsibility/maturity	

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Summary

Compilation of North Dakota State Science and Engineering Fair finalists was made throughout the summer of 1983 and academic years 1983-84 and 1984-85. Addresses were located by telephoning high schools and ultimately parents/relatives of these participants.

A survey addressing the benefits of the science fair system, as well as the influence of this activity on choice of college and career, was mailed to those individuals whose current addresses were available.

Of the surveys sent, 80% were returned. It was found that science fair participants are well-educated. Of the 213 respondents, 67% had a Bachelors Degree or better. The remaining were college students (28%) or high school students (5%). Less than 1% have only a high school education. Individuals in the sample were also found to be employed. The greatest number are employed full time (58%). Part time employees compose 9.2%, while many of the group are still students (29.2%), and if working at all, most on a part time basis. Only 1% of this group is unemployed. Those unemployed are women who recently moved with their spouses and are actively seeking employment. Full time homemakers were indicated by 2.6% of the sample. While the choice of college was not influenced by science fair participation, it was the consensus of this group that careers had been influenced by participation in science fairs.

Whether science fair participation is best as a voluntary activity or rather as a required activity is unclear. Most of this group were volunteers (76%). Certainly there are advantages in either case. As a

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voluntary activity, the student is more self-motivated. This is evident in the fact that 100% of volunteers received no outside help from instructors or parents. Those who were required, however, needed more encouragement from science instructors as well as needing help completing their projects from both science instructors and parents. Both voluntary and required participants seemed to gain similar benefits (i.e., travel, poise with evaluators, and the challenge of a professional's evaluation). however, those who participated by requirement seemed to gain a little bit more in each category of benefits. It seems that whatever policy works best for the supervising teacher should be used. In either case these benefits, as well as career direction, education, and employment are derived from participating in this co-curricular activity.

A complete listing and an assessment of the science fair has been completed. It was educational to have made personal contact with many of the individuals who made the history of North Dakota's State Science Fair. They were also enthusiastic about this study. The conversations and correspondence with past finalists, their high school instructors, and other officials associated with the study, reiterated many positive statements concerning this function. A 1968 finalist residing in Nebraska wrote, " . . . As a current rural elementary teacher, my students rated their previous science fair experience preferred to their track meet experiences." A 1964 finalist, living in Washington State adds, "It was clearly a highly rewarding experience - motivating me strongly to go to college. (It) gave me an awareness of career options."

Many prior finalists are still associated with fairs as judges, coordinators and parents. One gentleman, a 1955 and 1956 science fair

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participant who is employed by a pulp manufacturer, writes, "I've judged our local fairs . . .in Washington State (which are) not nearly as well-coordinated as North Dakota was in the early '50's when I attended two National Fairs."

It can be said, without reservation, that this activity has many beneficial outcomes. A finalist currently residing in Alaska, writes, "Attending the National Science Fair was the highlight of 18 years of schooling. It was a big deal -- not only the fair itself, but the banquet and entertainment provided. Friends from across ND were made . . . many lasting memories remain, both of projects and the traveling experience." An Albany, NY, resident and former 1966 finalist says, " it (science fair participation) was a rare and precious opportunity for a rural, isolated student to become exposed and involved in academics on a National/International level . . . (it) was a priceless, motivating event for me."

One finalist, a newspaper publisher from Houston, Texas, who participated in science fairs in 1956, sums the whole affair up nicely. "My science fair experiences were all very positive. And even though I have not ended with a career in the science fields, I consider the learning, doing, sharing, and competing all helpful in my success as an adult."

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Appendix A

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North Dakota State University
OF AGRICULTURE AND APPLIED SCIENCE
FARGO, NORTH DAKOTA 58105

...T OF BOTANY/BIOLOGY

AREA CODE 701
TELEPHONE 237-8679

February 1985

...ember the excitement you felt when you were chosen to attend the International ...ience and Engineering Fair (ISEF)? Thirty-two years have passed since North ...kota became a member of the ISEF and nobody has asked the most important indi...idual associated with the science fair--you--for your input concerning various ...pects of the science fair.

...u are one of over 300 state science fair winners being asked to respond to these ...atements assessing the value of the science fair. To ensure a statistically ...lid study, it is important to have the questionnaire completed and returned by ...rch 1, 1985.

...ur name has been placed on the survey for record keeping purposes. You may be ...ssured, however, that the information gathered by this survey will be kept com...letely confidential.

...e tabulated results of this research will be made available to the North Dakota ...ience and Engineering Fair Association. You may receive a summary of the results ...y checking the box next to "copy of results requested" on the inside of the return ...apper and by correcting any errors on your name and address on the address label. ...Please do not put this information on the questionnaire itself.) To mail the com...leted questionnaire, staple it inside the return wrapper with my address showing.

...s a former science instructor planning to return to teaching, I am most anxious to ...ear from you. If you have any questions, I can be reached Monday, Wednesday, and ...riday at (701) 237-8679 from 9:30-12:00 (school), and evenings at (701) 845-0500 ...(home). Please feel free to write or call.

...ank you for your assistance.

Linda S. Olson

Linda S. Olson
Graduate Student, Botany/Biology

Donald R. Scoby
Professor of Biology

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NORTH DAKOTA SCIENCE FAIR SURVEY

The following statements describe attitudes concerning the science fair system in North Dakota. Please circle the number beside the statement best indicating your feelings about each statement and return it by March 1, 1985.

1. My participation in the science fair was: (circle number)

    1. VOLUNTARY
    2. REQUIRED

2. The grade I was in when I first won at the North Dakota State Science Fair: (circle number)

    1. NINTH
    2. TENTH
    3. ELEVENTH
    4. TWELFTH

3. I was encouraged to participate in science fairs by: (circle number)

    1. MY SCIENCE INSTRUCTOR(S)
    2. OTHER INSTRUCTOR(S)
    3. PARENTS
    4. PEERS
    5. OTHER(S) (SPECIFY) _____

4. The majority of time spent on my science fair project was: (circle number)

    1. ON MY OWN WITHOUT HELP FROM PARENTS, TEACHERS, OR OTHERS
    2. WITH THE HELP OF TEACHER(S) AND PARENT(S)
    3. WITH HELP OF TEACHER(S)
    4. WITH HELP OF PARENT(S)
    5. WITH HELP OF OTHER(S)

5. My high school instructor provided adequate assistance: (circle number)

    1. YES
    2. NO

6. The cost of my science fair materials was absorbed by: (circle number)

    1. SCHOOL
    2. SELF
    3. PARENTS
    4. OTHER(S) (SPECIFY) _____

7. I would estimate the cost of my science fair project to be: (circle number)

    1. LESS THAN $20
    2. $21 - $49
    3. $50 - $99
    4. $100 or MORE

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9. My choice of career was influenced by participation in the science fair: (circle number)

1. YES
2. SOMEWHAT
3. NO

9. My choice of a North Dakota college was influenced by a science fair judge from that institution: (circle number)

1. YES
2. NO
3. DOES NOT APPLY

10. My participation in the science fair has provided me with the following benefits: (circle number)

(1 means AGREE)
(2 means NEITHER AGREE NOR DISAGREE)
(3 means DISAGREE)

		Circle Your Answer		
A.	ENHANCED CREATIVITY.	1	2	3
B.	TRAVEL	1	2	3
C.	POISE WITH EVALUATORS.	1	2	3
D.	ASSOCIATION WITH PEERS	1	2	3
E.	CHALLENGE OF EVALUATION BY PROFESSIONALS . .	1	2	3
F.	OTHER (SPECIFY) _____	1	2	3

11. I would rate the value of doing a science fair project: (circle number)

1. HIGH
2. MEDIUM
3. LOW

12. I would encourage my children or other students to participate in science fairs: (circle number)

1. YES
2. NO

13. Please use the following space to make any comments concerning your experiences with science fairs:

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following will provide necessary demographic information. Please fill in blanks or circle the number beside the choice best completing the statements, return it to me by March 1, 1985.

15. The highest level of education that you have completed is: (circle number)

1. SOME HIGH SCHOOL (circle last grade completed - 9, 10, 11, 12)
2. COMPLETED HIGH SCHOOL
3. SOME COLLEGE (circle level completed - FRESHMAN, SOPHOMORE, JUNIOR SENIOR)
4. COMPLETED COLLEGE (SPECIFY DEGREE(S) AND MAJOR) _____
5. SOME GRADUATE WORK
6. A GRADUATE DEGREE (SPECIFY DEGREE(S) AND MAJOR) _____
7. PROFESSIONAL DEGREE (SPECIFY DEGREE(S) _____

16. Your present status is (circle number)

1. EMPLOYED PART-TIME
2. EMPLOYED FULL-TIME
3. UNEMPLOYED
4. RETIRED
5. FULL-TIME HOMEMAKER
6. STUDENT

17. If you are or have been employed, describe your usual occupation:

TITLE: _____

TYPE OF WORK: _____

TYPE OF COMPANY OR BUSINESS _____

18. Your graduating high school class size was: (circle number)

1. LESS THAN 25 STUDENTS
2. 25-49 STUDENTS
3. 50-99 STUDENTS
4. 100-199 STUDENTS
5. GREATER THAN 200 STUDENTS

19. The area you grew up in was: (circle number)

1. RURAL
2. SMALL TOWN (Population less than 1000)
3. TOWN (Population 1000-10,000)
4. CITY (Population more than 10,000)

Thank you for your valued responses. I would appreciate your returning this surv to me no later than March 1, 1985.

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NORTH DAKOTA

Appendix figure 1. North Dakota Counties.

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Appendix B

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Alphabetical Listing of Science Fair Participants
1951-1985

A

*John Aasmundstad, Dickinson (1963)
David Adams, Edmore (1966)
*Donald J. Albers, Wahpeton (1959)
*Don Alexander, Harvey (1962)
Rick Amundrud, Edmore (1967)
Jerome Duane Anderson, Minot (1955)
*Karen Anderson, Scranton (1984)
*Lawrence A. Anderson, Oakes (1959)
*Paul Anderson, Underwood (1983,1984)
*Philip Anfinrud, Aneta (1976,1977)
Karen Anheluk, Belfield (1971)
*Allen James Aplass, Minot Senior High (1958)
Randy Lee Appert, Hazelton (1982)
*Robert Arnold, Jamestown (1956)
Marilyn Arst, Jamestown (1962)
*Robert Ash, Riverdale (1981)
Brad Ashton, Williston (1984)
*Eric Aslakson, Edmore (1976)

B

Gordon David Barks, Devils Lake (1955)
Nancy Ruth Barnard, Williston (1958)
*David Bauman, Bismarck (1968)
*Mike Barron, Jamestown (1967)
Barton Beglo, Dickinson (1964)
*Mike Belyea, Rolette (1969)
Michael Bender, Jamestown (1968)
*Peter Benson, Fargo South (1978, 1979)
*LaVonne Berg, Bowbells (1977)
Dave Beste, Rugby (1972)
Maninder Bhugra, Valley City (1975)
*Shirley Rae (Blanchard) Colgrave (1956)
*Joy V. Bliss, Grafton (1959)
Jerry Blotter, Turtle Lake (1973)
*Willis Blumhardt, Kulm (1957, 1958)
*John Boe, Turtle Lake (1977)
*Loran Borud, Minot (1980, 1981)
Edie Broschat, Williston (1974)
John Broschat, Williston (1971)
*David Brubakken, Hoople (1964)
*Bruce Burkett, Jamestown (1966)
Richard Burrows, Bismarck (1969)
Cheryl Buschow, Minot (1962, 1963)

*Those responding to survey

C

Elizabeth (Caldwell) Kaplin, Grand Forks (1960)
*David Cameron, Beach (1970)

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Christopher Cannon, Jamestown (1980)
Jacolyn (Carlson) Leibold, Wahpeton (1971)
*Billy Ceynar, Watford City (1973)
Robert Ceynar, Watford City (1971, 1972)
*Janna Charrier, Bottineau (1984, 1985)
Jonathan Cheng, Williston (1985)
Sebastian Cherian, Jamestown (1985)
Lorna (Charon) Lawrence, Edmore (1972)
*Neil Clark, Fessenden (1965)
Steven Clemenson, Devils Lake (1976)
*Bill Cornatzer, Grand Forks Central (1973)
*Nancy Cornatzer, Grand Forks Central (1969)
*Nancy De (Cowell) Christensen (1954, 1955)
John Craft, Jamestown (1985)
Jeb Creech, Bismarck (1985)
*Frank Cudworth, New Rockford (1977)

D
Karen Dahlen, Fargo (1953)
Larry Daly, Minot (1956)
Todd Dammen, Cavalier
*Dennis Dau, Casselton (1964)
*Donald Lee Dawkins, Valley City (1961)
Carlton Dick, Sheyenne (1985)
*Steven Ditmer, Mott (1977)
*Allen Dominek, Williston (1975)
*De Ricci (Dooley) Horwatt, Bismarck St. Mary's (1964)
Robert Frederic Dugan, Jamestown (1959)
*Curtis Joel Durand, Jamestown (1961)
*Paul Durbin, Devils Lake (1984)
James Durst, Mandan (1964)
Darla Duval, Lisbon (1985)
*Gay Leon Dybwad, Grand Forks Central (1959, 1950)
*Pat Dziuk, Devils Lake (1984)

E
*Lori Egly, Belfied (1984)
*Beth Ehlis, New England St. Mary's (1979,1980,1981,1982)
*David George Ehlis, New England St. Mary's (1980, 1981)
*Lisa Ehlis, New England St. Mary's (1983, 1985)
*Gerald Ehni, Fessenden (1959, 1960)
*LeRoy Norman Eide, Williston (1960)
*Chuck Eldredge, Fessenden (1981)
*John Thomas Eldredge, Fessenden (1981,1982)
David Ellingson, Jamestown (1960)
*Mark Ellingson, Maddock (1981)
*Jim Elliott, Valley City (1962, 1963)
Cheryl (Engleman) Kalberer, Hazelton (1968, 1969, 1970)
*James Eraker, West Fargo (1966)
*Glenn Ermer, Cavalier (1978)
Delano Eslinger, Minot (1967)
*Tim Eslinger, Turtle Lake (1975)

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F

Phyllis Jean Farstad, Devils Lake (1957)
*Robert Faser, Minot (1983)
*Charlene (Fetting) Han, Finley (1977)
Dale Ficek, Dickinson (1974)
William Fields, Cavalier (1973)
*Bernie Fischer, Rhame (1975)
*C. Gary Fischer, Grafton (1958)
Mary Kay Flath, Williston (1960)
*Gabriel Flynn, Jamestown (1984)
*John Isaac Folland, Tolley (1982)
Elaine Ford, Minot (1967)
Julian Fossen, Fessenden (1960)
*Martin Fredricks, Jamestown (1957)
*Sylvia Ann (Frigstad) Knutsvig, Hatton (1961)
William Fristad, Mandan (1971)

G

*Daria (Galbreath) Freeberg, Enderlin (1981)
*Mitchell Gallagher, Jamestown (1979)
*Ronald Gallagher, Jamestown (1981)
*Robert Gardner, New England St. Mary's (1965)
George Thomas Gassner, Fargo North (1982)
Nadine Carol Gassner, Fargo North (1981)
*Jane Gemmill, Fordville (1984)
*Kathleen Gemmill, Fordville (1980)
George Gillies, Rugby (1970)
Danny Goehring, Bismarck (1966)
Cheryl Goldsack, Rocklake (1970, 1971)
*Todd Goven, Turtle Lake (1979)
*Janet Grimson (Loos), Grafton (1957)
*Carol Griffin, Valley City (1975)
Jeff Gunderson, Watford City (1979)
*Jeffrey Gunderson, Buxton Central Valley (1974)
Scott Gunderson, Williston (1978)
Thomas Gunn, Minot (1962)
*Paul Gutschmidt, Gackle (1974)

H

Crystal Haigh, Beach (1975)
*Gary Hall, Lisbon (1984)
*Tami Hall, Jamestown (1983)
Jim Haberstroh, Mott (1985)
Murray Hamlet, Valley City (1960)
*Kris (Hansen) Swanson, Valley City (1971, 1972, 1973)
*Allan Hanson, Kenmare (1973)
Jo-Ida Hanson, Jamestown (1964)
Michael Harty, Grand Forks Central (1966, 1968)
Bradley Heck, Napoleon (1977)
*Brian Heitkamp, Wahpeton (1973)
*Diane (Helle) Koltes, Edmore (1964)
David Len Heringer, Jamestown (1982)
*Wesley Hermen, Leeds (1968)

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*Patricia (Hermes) Smith, Wahpeton (1961)
Alan J. Herr, Bismarck Central (1961)
Ron Heubner, Williston (1978, 1979)
*Joan (Heuchert) Schumm, St. Thomas (1973, 1974, 1975)
Cammy Hiaasen, Minnewauken (1980)
Deanne R. Hill, Bismarck (1980)
Esther Hjalmarson, Cavalier (1965)
Darrell Hovde, Williston (1977, 1978)
Gregory Hodon, Dickinson (1970)
*James Hougen, Valley City (1951)
*Joan Hruby, Wilton (1982, 1983, 1984, 1985)
*Laura Hruska, Jamestown (1984)
*Christine Huegelen, Maddock (1983)
Francis Hunkler, Richarton (1967)
*Jason Huso, Aneta (1976)
Dann Hussey, Devils Lake (1954)

I
Bernice Ihlenfeld, Fargo (1954)
Alan Inglis, Mandan (1962)
Jerold W. Isensee, Fargo (1953)

J
*Lawrence Jacobs, New England St. Mary's (1966)
*Denise Jallo, Fordville (1983)
*Vonda Dell Jandt, Beach (1980)
*Russell Jensen, Cavalier (1972)
Gail Johnson, Wahpeton (1963)
*Holly (Johnson) Mawby, Minot (1979)
Lloyd Johnson, Rolla (1971)
*Marjorie Ann (Johnson) Spicher, Grafton (1954)
Marvin Johnson, West Fargo (1962)
Mavis L. Johnson, Devils Lake (1952)
*Ruby Helen (Johnson) Graff, Minot (1959, 1961)
*Wendy Johnson, Richland High School-Colfax (1980)
*Bill Joos, Jamestown (1962, 1963)
*Richard Jorandby, Grafton (1955)

K
*Albert Kaeding, Devils Lake (1964)
*Edward Kaeding, Devils Lake (1969)
Chad Kainz, Jamestown (1985)
*Deborah Kaseman, Linton (1974)
Sharon Kautzmann, Mandan (1963)
*Janice (Kearney) Huber, Grafton (1955)
*Marlen Kemmet, Napoleon (1975)
*Steven Kemp, Cavalier (1976)
*Lynn Kinneberg, Richland High School-Colfax (1977)
*Joseph (Jay) Kisch, Jamestown (1980)
William E. Kirchmeier Jr., Bismarck St. Mary's (1957)
*Patricia Ann Kirchoffner, Devils Lake (1953)
*Jeff Klein, Devils Lake (1978)
*Paul Knutson, Fargo North (1979)

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Todd Koenig, Fessenden (1980)
*Don Koeppen, Linton (1965)
Mark Kokott, Jamestown (1968)
*Mark Koponen, Bishop Ryan-Minot (1972)
Gerald Kordonowy, Belfield (1974, 1975)
Wade Kordonowy, Dickinson (1978, 1981)
*Chris Kosieracki, Starkweather (1965, 1967)
Tim Krause, Neche (1971)
*Marlin D. Krukenberg, Beulah (1959)
Paul Kube, Grand Forks Central (1969)
Greg Kuntz, Turtle Lake (1977)
*Steven Kuske, Fessenden (1977)

L

*H. Morgan Lacy, Fessenden (1966)
*Thomas R. Ladendorf, Minot (1959)
Lisbeth Lahaug, Minot (1956)
Bradford Larson, Dickinson (1968, 1969)
Roger Larson, Devils Lake (1959)
*Mike Leduc, Bishop Ryan-Minot (1977, 1978)
Richard Lee, Williston (1961)
Richard Leer, Devils Lake (1962)
*Ken Libbrecht, West Fargo (1976)
Michael B. Lien, Fargo (1954)
*Johanna (Limvere) Keenan, Valley City (1958)
*Maren (Lindholm) Daley, Midway (1975, 1976)
*Karen Lind, Williston (1966)
Eugene Liu, Fargo North (1978)
*Roland Lobsinger, Bishop Ryan-Minot (1980)
*Alan Lukes, Park River (1962, 1963)
Steve Lund, Bismarck Central (1965, 1966)
*Lowell Lykken, Grafton (1954)
Scott C. Lynnes, Leonard (1982)
*Larry Lysne, Kensal (1969)

M

*Keath Marx, Assumption Abbey-Richardton (1963)
Peter Mazur, Fargo Shanley (1960)
Brian Martinez, Minot (1974)
*Lorelei (Mayer) Rollins, Richardton (1960)
Rae McIntee, Williston (1973, 1975)
*Robert McKibben, Valley City (1967, 1968)
*Emery Mehrer, Mott (1972, 1974)
John Meisner, Bismarck (1976)
Michael Merrill, Jamestown (1963, 1965)
*Grant Metz, Gackle (1973)
John Miller, West Fargo (1985)
*Robert Miller, Lincoln High School-Casselton (1957, 1958)
*Fredrick Mitzel, Devils Lake (1973)
*Tim Moore, Turtle Lake (1972, 1974)
Carl Muus, Bishop Ryan-Minot (1970, 1971, 1972)
Paul Muus, Bishop Ryan-Minot (1976, 1978)

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N

*Diane (Nash) Baker, New England St. Mary's (1968)
*Robert Ness, Sykeston (1975, 1976, 1977)
Dan Neuenschwander, Fessenden (1963)
Robert Newman, Minot (1965)
*Connie Norhiem, Jamestown (1969)
*Cheryl (Normann) Poage, Wahpeton (1964, 1965)
*Curtis Novak, Fordville (1979)
Neal Nygard, Minot (1971)

O

*Leanne (Odegaard) Fernald, Jamestown (1961)
*Myron Oen, Minot (1954)
*Mark Olerud, Wahpeton (1984)
*Sheila Olson, Turtle Lake (1978, 1979)
*Paul Orchard, Bismarck (1976)
*Charles A. Ordahl, Grafton (1952)
Jeffrey Oster, Jamestown (1978)

P

*Jean (Page) Charzempa, Cavalier (1978)
Victor Paulson, Portland (1964)
*Mark Pavicic, Fargo South (1970)
*Steve Pavicic, Fargo South (1977)
*Diane (Pearson) Sams, Dickinson (1969)
*Jay Pearson, Dickinson (1975)
*Janet Peter, Valley City (1967, 1968)
*William Peterson, Wahpeton (1974)
*Steve Pierson, Minot (1983)
John Piotroviski, Minot (1964)
Gregory Pfister, Wahpeton (1972)
*Patti (Polries) Penas, Sykeston (1976)
*Theodore Poppke, Bismarck (1975)
*William Ptacek, Oakes (1974, 1976)

R

Janet Rassmussen, Maddock (1985)
*Jill Rassmussen, Maddock (1984)
*Debbie M. Ravnaas, Turtle Lake (1980)
Allen A. Redmann, Walsh Co.Ag. School-Park River (1961)
Pamela Redmann, Bismarck (1978)
*Brenda Reis, Napoleon (1971, 1972, 1973)
*Scott Reistad, Leonard (1980)
*Ruth Retzlaff, Aneta (1979, 1980)
*Brent William Richtsmeier, Clifford/Galesburg (1981)
*Dean Richtsmeier, Clifford/Galesburg (1984)
James Richtsmeier, Clifford/Galesburg (1985)
Paul Robinson, Williston (1976)
*Jan (Rohs) Fouks, Hoople (1967)
*Floyd Rollefstad, Cavalier (1971, 1972)
Mark Roster, Beach (1973)
*Robert Rotering, New England St. Mary's (1966, 1967)
Jill Ruzicka, Mandan (1967)

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S

*Jerry Saltness, Fessenden (1963)
*Albin Sandau, Hazen (1960)
*John Savereide, Hillsboro (1972)
Royce Schaeffer, Harvey (1968)
Alan Schmidt, Valley City (1965, 1966)
Jim Schnell, Dickinson (1965)
*Darrell Schoenig, Valley City (1968, 1969, 1970)
*Stephanie Schoenrock, Hazen (1981)
*Louie Schornack, Hillsboro (1962)
Corrine Scofield, Williston (1969)
*Julie Marie Seilstad, Fordville (1982)
*Renee Selig, Jamestown (1966)
*Neil Shepler, Jamestown (1974)
*Richard Shepler, Jamestown (1964)
*Beth (Sherman) Pollito, Valley City (1969)
*Doreen (Simpson) Oakland, Bisbee (1974)
*Judy (Sisk) Meyer, Westhope (1964)
Rex Skodje, Bismarck (1971, 1972, 1973)
*Rita Ann (Slobjan) Bosworth, Mohall (1954)
Jeanne Smith, Bismarck (1967)
John W. Smith, Jamestown (1956)
Greg Solberg, Bottineau (1966)
*Barbara Solee, Jamestown (1970, 1971)
John Sorenson, Jamestown (1965)
Timothy Spilman, Bismarck St. Mary's (1979)
Patrick Spilman, Bismarck St. Mary's (1973, 1974)
*Donna L. (Staudinger) Paulson, Richardton-St. Mary's (1961)
Robert Stav, Dickinson (1964)
*Clara Steir, Richardton (1962)
*Marilynn (Sten) Kruger, Devils Lake (1955, 1956)
*Mary Ellen (Stenso) Pernichele, Grafton (1957)
*Shari Steinwand, Belfield (1982, 1983)
Kevin Stroh, Dickinson (1977)

T

*Curtis Thom, Velva (1968)
*David Thompson, Devils Lake (1958)
*Joan Thompson, Williston (1968)
Pat Thompson, Williston (1965)
Tom Thompson, Dickinson (1976)
Chad Thorlakson, Cavalier (1985)
*Kevin Lon Thorlakson, Cavalier (1981)
*Marvin Thurn, Wishek (1967)
Craig Tinus, Bottineau (1982)
*Harriet (Tobin) Howe, Beulah (1963)
*Patricia Ann (Toman) Eck, Mandan (1959)
*Paul Tomasek, Grand Forks Central (1970)
*Joe M. Torgerson, Bishop Ryan-Minot (1981)
*James E. Tostevin, Mandan (1955, 1956)
*Edward Towarnicky, Fessenden (1978, 1979, 1980)
Jim Towarnicky, Fessenden (1975)

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*Mary Beth Towarnicky, Fessenden (1981, 1982)
*Mike Towarnicky, Fessenden (1973, 1974, 1975)
*Leta (Trengen) Oberg, Hoople (1963)

U

Gunnar Unger, Mandan (1958)
*Gilbert T. Urban, Jamestown (1955)
*Kevin Urdahl, Jamestown (1981, 1982)
Melanie Urdahl, Jamestown (1984, 1985)
*Margaret Ann (Urlaub) Viebrock, Walhalla (1966)

V

*Lori (Vossler) Walcker, Turtle Lake (1979)
*Lisa Verwest, Finley-Sharon (1983)
Jeff Vickers, Williston (1970, 1971)
Larry Volk, Jamestown (1970)
Tammy Volk, Devils Lake (1982)
*Michelle Vonrueden, Wahpeton (1975)
James Votava, Grafton, (1956,1958)

W

*Lynne Anita (Walter) Miller, Mandan (1956,1957)
Aldean Allen Wahl, Jamestown (1958, 1960)
*Sherry (Weihemuller) McGuiness, Fessenden (1961)
Eleanor Weisenhaus, Devils Lake (1956, 1957, 1958)
*John Wetsch, Killdeer (1978)
Herman Weyland, Fargo (1953)
*Lew White, Jamestown (1954)
*Galen Whipple, Fessenden (1961)
*Steven Williams, Cleveland (1972)
*Richard Willoughby, Turtle Lake (1970)
*Robert Wilson, Pembina (1968)
*Jeanette Irene (Wire) Winge, Valley City (1959)
*Mary Jo (Wittkop) Sartori, Valley City (1957)
*Randy Woodward, Walhalla (1965)
*Marilyn (Wralstad) Wigness, Grafton (1953)

Y

Harry Young, Minot (1963)
John Young, Williston (1969)

Z

*JoAnn Zachmann, Golva (1976)
*Kevin Zikmund, Fordville (1983)
*Michael Zook, Beach (1972)

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Appendix C

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Science Fair Participants (1951-1980)
Alphabetical Listing by Town

ANETA
Philip Anfinrud (1976, 1977)
Jason Huso (1976)
Ruth Retzlaff (1979, 1980)

BEACH
David Cameron (1970)
Crystal Haigh (1975)
Vonda Dell Jandt (1980)
Mark Roster (1973)
Michael Zook (1972)

BELFIELD
Karen Anheluk (1971)
Lori Egly (1984)
Gerald Kordonowy (1974, 1975)
Shari Steinwand (1982, 1983)

BEULAH
Marlin D. Kruckenberg (1959)
Harriet (Tobin) Howe (1963)

BISBEE
Doreen (Simpson) Oakland (1974)

BISMARCK
William E. Kirchmeier Jr. (1957, 1958) St. Mary's
Alan J. Herr (1961) Central
DeRicci (Dooley) Howatt (1964) St. Mary's
Steve Lund (1965, 1966) Central
Danny Goehring (1966)
Jeanne Smith (1967)
David Bauman (1968)
Richard Burrows (1969)
Rex Skodje (1971, 1972, 1973)
Patrick Spilman (1973, 1974) St. Mary's
Theodore Poppke (1975)
John Meisner (1976)
Paul Orchard (1976)
Pamela Redmann (1978)
Timothy Spilman (1979) St. Mary's
Deanne R. Hill (1980)
Jeb Creech (1985)

BOTTINEAU
Greg Solberg (1966)
Janna Charrier (1984, 1985)
Craig Tinus (1982)

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BOWBELLS
LaVonne Berg (1977)

CASSELTON
Dennis Dau (1964)
Robert Miller (1957, 1958)

CAVALIER
Todd Dammen (1977)
Glenn Ermer (1978)
William Fields (1973)
Esther Hjalmarson (1965, 1967)
Harold Hjalmarson (1965 1967)
Russell Jensen (1972)
Steven Kemp (1976)
Jean (Page) Charzempa (1978)
Floyd Rollefstad (1971, 1972)
Kevin Lon Thorlakson (1981)
Chad Thorlakson (1985)

CENTRAL VALLEY/BUXTON
Jeffrey Gunderson (1974)

CLEVELAND
Steven M. Williams (1972)

CLIFFORD-GALESBURG
Brent William Richtsmeier (1981)
Dean Richtsmeier (1984)
James Richtsmeier (1985)

COLFAX-Richland High School
Wendy Johnson (1980)
Lynn Kinneberg (1977)

DEVILS LAKE
Gordon Duane Barks (1955)
Steven Clemenson (1976)
Paul Durbin (1984)
Phyllis Jean Farstad (1957)
Dann Hussey (1954)
Mavis Johnson (1952)
Albert Kaeding (1964)
Edward Kaeding (1969)
Patricia Ann Kirchoffner (1953)
Jeff Klein (1978)
Roger Larson (1959)
Richard Leer (1962)
Fredrick Mitzel (1973) St. Mary's
Marilynn (Sten) Kruger (1954, 1955 1956)
David A. Thompson (1958)
Tammy Volk (1982)
Eleanor Weisenhaus (1956, 1957, 1958)

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DICKINSON
John Aasmundstad (1963)
Barton Beglo (1964)
Dale Ficek (1974)
Gregory Horton (1970)
Wade Kordonowy (1978, 1981)
Bradford Larson (1968)
Diane (Pearson) Sams (1969)
Jay Pearson (1975)
Jim Schnell (1965)
Robert Stav (1964)
Kevin Stroh (1977)
Tom Thompson (1976)

EDMORE
David Adams (1966)
Rick Amundrud (1967)
Eric Aslakson (1976)
Lorna (Charon) Lawrence (1972)
Diane (Helle) Koltes (1964)

ENDERLIN
Daria (Galbreath) Freeberg (1981)

FARGO
Peter Benson (1978, 1979) South
Karen Dahlen (1953)
George Gassner (1982, 1983) North
Nadine Carol Gassner (1981) North
Gloria Mae Hottman (1951) Central
Bernice Ihlenfeld (1954) Central
Jarold W. Isensee (1953) Central
Paul Knutson (1979) North
Michael B. Lien (1954) Central
Eugene Liu (1978) North
Peter Mazur (1960) Shanley
Mark Pavicic (1970) South
Steve Pavicic (1977) South
Herman Weyland (1953) Central

FESSENDEN
Neil Clark (1965)
Gerald Ehni (1959, 1960)
Chuck Eldredge (1979)
John Thomas Eldredge (1981, 1982)
Julian H. Fossen (1960)
Todd Koenig (1980)
Steven Kuske (1977)
H. Morgan Lacy (1966)
Dan Neuenschwander (1953)
Jerry Saltness (1963)
Edward Towarnicky (1978, 1979, 1980)

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Jim Towarnicky (1975)
Mary Beth Towarnicky (1981, 1982, 1983)
Mike Towarnicky (1973, 1974, 1975)
Nancy Towarnicky (1983)
Sherry (Weihemuller) McGuiness (1961)
Galen Whipple (1961)

FINLEY
Charlene (Fetting) Han (1977)
Lisa Verwest (1983)

FORDVILLE
Jane Gemmill (1984)
Kathleen (Gemmill) Bloom (1980)
Denise Jallo (1983)
Curtis Novak (1979)
Julie Seilstad (1982)
Kevin Zikmund (1983)

GACKLE
Paul Gutschmidt (1974)
Grant Metz (1973)

GOLVA
JoAnn (Zachmann) Buchholz (1976)

GRAFTON
Shirley Rae (Blanchard) Colgrave
Joy V. Bliss (1959)
C. Gary Fischer (1958)
Janet (Grimson) Loos (1957)
Marjorie Ann Johnson (1954)
Richard Jorandby (1955)
Janice Kearney (1955)
Lowell Lykken (1954)
Charles A. Ordahl (1952)
Mary Ellen (Stenso) Pernichele (1957)
James Votava (1956, 1958)
Marilyn (Wralstad) Wigness (1953)

GRAND FORKS
Elizabeth (Caldwell) Kaplin (1960) Central
Bill Cornatzer (1973) Central
Nancy (Cornatzer) (1969) Central
Gay Leon Dybwad (1959, 1960) Central
Michael Harty (1966, 1968) Central
Paul Kube (1969)
Paul Tomasek (1970)

HARVEY
Don Alexander (1962)
Royce Schaeffer (1968)

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HATTON
Sylvia Ann (Frigstad) Knutsvig (1961)

HAZELTON
Cheryl (Engleman) Kalberer (1968, 1969, 1970)

HAZEN
Albin W. Sandau (1960)
Stephanie Schoenrock (1981)

HILLSBORO
John Savereide (1972)
Louie Schornack (1962)

HOOPLE
David Brubakken (1964)
Jan Rohs (1967)
Leta (Trengen) Oberg (1963)

JAMESTOWN
Robert Arnold (1956)
Marilyn Arzt (1962)
Mike Barron (1967)
Michael Bender (1968)
Bruce Burkett (1966)
Christopher Cannon (1980)
Sebastian Cherian (1985)
John Craft (1985)
Robert Frederic Dugan (1959)
Curtis Joel Durand (1961)
David G. Ellingson (1960)
Gabriel Flynn (1984)
Martin Fredricks (1957)
Mitchell Gallagher (1979)
Ronald Gallagher (1981)
Tami Hall (1983)
Jo-Ida Hanson (1964)
David Len Heringer (1982)
Laura Hruska (1984)
Bill Joos (1962)
Chad Kainz (1985)
Joseph (Jay) Kisch (1979, 1980)
Mark Kokott (1968)
Michael Merrill (1963)
Connie Norhiem (1969)
Leanne Odegaard (1961)
Jeffrey Oster (1978)
Renee Selig (1966)
Richard Shepler (1964)
Neil Shepler (1974)
John W. Smith (1956)
Barbara Solee (1970)
John Sorenson (1965)

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Gilbert T. Urban (1955)
Kevin Urdahl (1981, 1982, 1983)
Melanie Urdahl (1984, 1985)
Larry Volk (1970)
Aldean Allen Wahl (1958, 1960)
Lew White (1954)

KENMARE
Allan Hanson (1973)

KENSAL
Larry Lysne (1969)

KILLDEER
John Wetsch (1978)

KULM
Willis Blumhardt (1957, 1958)

LEEDS
Wes Hermen (1968)

LEONARD
Scott Lynnes (1982)
Scott Reistad (1980)

LINTON
Don Koeppen (1965)

LISBON
Darla Duval (1985)
Gary Hall (1984)

MADDOCK
Mark Ellingson (1981)
Christine Hugelen (1982, 1983)
Janet Rasmussen (1985)
Jill Rasmussen (1984)

MANDAN
James Durst (1964)
William Fristad (1971)
Alan Inglis (1962)
Sharyn Kautzmann (1963)
Jill Ruzicka (1967)
Patricia Ann (Toman) Eck (1959)
James E. Tostevin (1955, 1956)
Gunnar Unger (1958)
Lynne Anita (Walter) Miller (1956, 1957)

MIDWAY
Maren (Lindholm) Daley (1975, 1976)

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MINNEWAUKEN
Cammy Hiaasen (1980)

MINOT
Jerome Duane Anderson (1955)
Allen James Aplass (1958)
Loran Borud (1980, 1981)
Cheryl Buschow (1962, 1963)
Larry Daly (1956)
Delano Eslinger (1967)
Robert Faser (1983)
Elaine Ford (1967)
Thomas Gunn (1962)
Ruby Helen Johnson (1959, 1961)
Holly Johnson (1979)
Mark Koponen (1972)
Thomas R. Ladendorf (1959)
Lisbeth Lahaug (1956)
Mike LeDuc (1977, 1978) Bishop Ryan
Roland Lobsinger (1980) Bishop Ryan
Brian Martinez (1974)
Carl Muus (1970, 1971, 1972) Bishop Ryan
Paul Muus (1976, 1978) Bishop Ryan
Robert Newman (1965)
Neal Nygard (1971)
Myron Oen (1954)
Steve Pierson (1983)
John Pistroviski (1964)
Joe M. Torgerson (1981) Bishop Ryan
Harry Young (1963)

MOHALL
Rita Ann (Slobjan) Bosworth (1954)

MOTT
Jim Haberstroh (1985)
Emery Mehrer (1972, 1974)

NAPOLEON
Bradley Heck (1977, 1978)
Marlen Kemmet (1975)
Brenda Reis (1971, 1972, 1973)

NECHE
Tim Krause (1971)

NEW ENGLAND-St. Mary's
Beth Ehlis (1979, 1980, 1981, 1982)
David George Ehlis (1980, 1981)
Lisa Ehlis (1983, 1985)
Robert Gardner (1965)
Lawrence Jacobs (1966)

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Diane Nash (1963)
Robert Rotering (1966, 1967)

NEW ROCKFORD
Frank Cudworth (1977)

OAKES
Lawrence A. Anderson (1959)
William Ptacek (1974, 1976)

PARK RIVER
Alan Lukes (1962, 1963)
Allen A. Redmann (1961)

PEMBINA
Robert Wilson (1968)

PORTLAND
Victor Paulson (1964)

RHAME
Bernie Fischer (1975)

RICHARDTON
Fran Hunkler (1967)
Lorelei N. (Mayer) Rollins (1960) St. Mary's
Keath Marx (1963) Assumption Abbey
Donna Staudinger Paulson (1961) St. Mary's
Clara Steir (1962)

RIVERDALE
Robert Ash (1981)

ROCK LAKE
Cheryl Goldsack (1970, 1971)

ROLETTE
Mike Belyea (1969)

ROLLA
Lloyd Johnson (1971)

RUGBY
Dave Beste (1972)
George Gillies (1970)

ST. THOMAS
Joan (Heuchert) Schumm (1973, 1974, 1975)

SCRANTON
Karen Anderson (1984)

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SHEYENNE
Carlton Dick (1985)

STARKWEATHER
Chris Kosieracki (1965, 1967)

SYKESTON
Robert Ness (1975, 1976, 1977)
Patti (Polries) Penas (1976)

TOLLEY
John Folland (1982)

TURTLE LAKE/MERCER
Jerry Blotter (1973)
John Boe (1977)
Todd Goven (1979)
Greg Kuntz (1977)
Tim Moore (1972, 1974)
Sheila Olson (1978, 1979)
Debbie M. Ravnaas (1980)
Lori Vassler (1979)
Richard Willoughby (1970)

UNDERWOOD
Paul Anderson (1984, 1983)
Pat Dziuk (1984)

VALLEY CITY
Maninder Bhugra (1975)
Nancy De (Cowell) Christenson (1954)
Donald Lee Dawkins (1961)
Jim Elliott (1962, 1963)
Carol Griffin (1975)
Marray P. Hamlet (1960)
Kris (Hanson) Swanson (1971, 1972, 1973)
James Hougen (1951)
Johanna (Limvere) Keenan (1958)
Robert McKibben (1967, 1968)
Janet (Peter) Dell (1967)
Allan Schmidt (1965, 1966)
Darrell Schoenig (1968, 1969, 1970)
Beth (Sherman) Pollito (1969)
Mary Jo (Wittkop) Sartori (1957)
Jeanette (Wire) Winge (1959)

VELVA
Curtis Thom (1968)

WAHPETON
Donald J. Albers (1959)
Jacolyn Carlson (1971)
Brian Heitkamp (1973)

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Patricia (Hermes) Smith (1961)
Gail Johnson (1963)
Cheryl (Normann) Poage (1964, 1965)
Mark Olerud (1984)
William Peterson (1974)
Gregory Pfister (1972)
Michelle Vonrueden (1975)

WALHALLA
Margaret Ann (Urlaub) Viebrock (1966)
Randy Woodward (1965)

WATFORD CITY
Billy Ceynar (1973)
Robert Ceynar (1971, 1972)
Jeff Gunderson (1979)

WESTHOPE
Judy Sisk (1964)

WEST FARGO
James Eraker (1966)
Marvin Johnson (1962)
Ken Libbrecht (1976)
John Miller (1985)

WILLISTON
Brad Ashton (1984)
Nancy Ruth Barnard (1958)
Edie Broschat (1974)
John Broschat (1971)
Jonathan Cheng (1985)
Allen Dominek (1975)
LeRoy Norman Eide (1960)
Mary Kay Flath (1960)
Scott Gunderson (1978)
Darrell Hovde (1977)
Ron Huebner (1978, 1979)
Richard Lee (1961)
Karen Lind (1966)
Rae McIntee (1973, 1975)
Paul Robinson (1976)
Corrine Scofield (1969)
Joan Thompson (1968)
Pat Thompson (1965)
Jeff Vickers (1970, 1971)
John Young (1969)

WILTON
Joan Hruby (1982, 1983, 1984, 1985)

WISHEK
Marvin Thurn (1967)

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Appendix D

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Chronological Listing Of North Dakota
International Science Fair Participants

1951

2nd National Science Fair
St. Louis, Missouri

Gloria Mae Hottman

Current Address Unavailable

Fargo Central High School
"Anatomy of the Frog"

James Hougen

530 Fawn Drive
San Anselmo, CA 94960

Valley City High School
"High Fidelity Recording and Reproducing System"

1952

3rd National Science Fair
Washington, D.C.

Mavis L. (Johnson) Wickstrom

Current Address Unavailable

Devils Lake Central High School
"Lepidoptera"

Charles A. Ordahl

2109 Yacht Mischief
Newport Beach, CA 92660

Grafton High School
"Wave Form Demonstrator"

1953

4th National Science Fair
Oak Ridge, Tennessee

Patricia Ann Kirchoffner

2700 N. Oxford Apt. 139
St. Paul, MN 55113

Devils Lake Central High School
"The Wax Workers"

Marilyn (Wralstad) Wigness

1205 E. Taft St.
Thief River Falls, MN 56701

Grafton High School
"Charles Law"

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1954

5th National Science Fair
Lafayette, Indiana

Nancy De (Cowell) Christensen

8786 Fiesta Terrace
Littleton, CO 80124

Valley City High School
"It Can Happen"

Bernice (Ihlenfeld) Ellis

Current Address Unavailable

Fargo Central High School
"Mixing Colored Light"

Michael B. Lien

Current Address Unavailable

Fargo Central High School
"Photomicrography of Crystals"

Myron Oen

Box 566
Sitca, AK 99835

Minot High School
"Radio Control and How It Works"

Marilynn (Sten) Kruger

Sheyenne, ND 58374

Devils Lake Central High School
"Ornithology"

Dann Hussey

Current Address Unavailable

Devils Lake Central
High School
"Petroleum Refining"

Marjorie Ann
(Johnson) Spicher

1524 Norman Avenue
San Jose, CA 95125

Grafton High School
"Color Vision"

Lowell Lykken

896 Blue Spring Drive
West Lake Village, CA 91361

Grafton High School
"Electron Control"

Rita Ann (Slobjan) Bosworth

1505 38th St. West
Rapid City, SD 57701

Mohall High School
"Nutritional Experiments
on Rabbits"

Lew White

28043 Winterdale Drive
Canyon Country, CA 91351

Jamestown High School
"Cinerama"

1955

6th National Science Fair
Cleveland, Ohio

Jerome Duane Anderson

Deceased

Minot Senior High School

"A Remote Controlled Robot"

Gordon David Barks

Deceased

Devils Lake Central
High School
"The Sun--Our Chief Source
of Energy"

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Nancy De (Cowell) Christensen

8786 Fiesta Terrace
Littleton, CO 80124

Valley City High School
"Vertical Bed"

Janice (Kearney) Huber

3261 Dawn View Avenue
Pamona, CA 91767

Grafton High School

"Explanation of Enzyme Action"

James E. Tostevin

1043 Connection Street
Shelton, WA 98548

Mandan High School
"Crystallography"

Richard Jorandby

5554 Old Bridge Road
West Palm Beach, FL 33401

Grafton High School
"Mammalian Skull Structure"

Marilynn (Sten) Kruger

Sheyenne, ND 58374

Devils Lake Central
High School
"Nature"

Gilbert T. Urban

119 2nd Avenue S.E.
Jamestown, ND 58401

Jamestown High School
"Sun Furnace In Your Attic"

1956

7th National Science Fair
Oklahoma City, Oklahoma

Robert Arnold

2165 Lower Saint Dennis Road
St. Paul, MN 55116

Jamestown High School
"Streamlining"

Larry Daly

Current Address Unavailable

Minot Senior High School
"Rocks and Minerals

John W. Smith

Current Address Unavailable

Jamestown High School

"Temperature and Your Battery"

James E. Tostevin

1043 Connection Street
Shelton, WA 98548

Mandan High School
"Crystal Measuring"

Shirley Rae (Blanchard)
Colgrave

12027 Seashore Drive
Houston, TX 77072

Grafton High School
"Comparison of Nervous
System"

Lisbeth Lahaug

Current Address Unavailable

Minot Senior High School
"Mystery of the Diamond
Willow"

Marilynn (Sten) Kruger

Sheyenne, ND 58374

Devils Lake Central
High School
"Color"

James F. Votava

1502 Rider Road
Grand Forks, ND 58201

Grafton High School
"Law of Induction"

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Lynne Anita (Walter) Miller

Route 2 Box 432
Lindstrom, MN 55045

Mandan High School

"Food Consumption Survey"

Eleanor Weisenhaus

Current Address Unavailable

Devils Lake Central
High School
"Fungi"

1957

8th National Science Fair
Los Angeles, California

Willis Blumhardt

Ellendale, ND 58436

Kulm High School

"The Heart And Circulation"

Martin Fredricks

616 S.E. 3rd
Jamestown, ND 58401

Jamestown High School
"Pressure's Effect on Air
Conducting Electrons"

William E. Kirchmeier Jr.

Current Address Unavailable

Bismarck St. Mary's High School

"Detection By Radar"

Mary Ellen (Stenso) Pernichele

4964 Viewmont Circle
Salt Lake City, UT 84117

Grafton High School
"Vision, More Than Meets The Eye"

Eleanor Weisenhaus

Current Address Unavailable

Devils Lake Central
High School
"Ants"

Phyllis Jean Farstad

Current Address Unavailable

Devils Lake Central
High School
"International Geophysical
Year"

Janet (Grimson) Loos

6009 Brookbank Road
Downers Grove, IL 60515

Grafton High School
"Ions"

Robert Miller

Box 64
Casselton, ND 58012

Lincoln High School
(Casselton)
"The Electron"

Lynne Anita (Walter) Miller

Route 2 Box 432
Lindstrom, MN 55045

Mandan High School
"Future Foods"

Mary Jo (Wittkop) Sartori

6608 West Carpenter Avenue
Greenfield, WI 53220

Valley City High School

"Color"

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1958

9th National Science Fair
Flint, Michigan

Allen James Aplass

Route 2 Box 33
Wallawalla, WA 99362

Minot Senior High School
"Effects of Gibberellic Acid on Seeds"

Willis C. Blumhardt

Ellendale, ND 58436

Kulm High School
"The Human Body"

William E. Kirchmeier, Jr.

Current Address Unavailable

Bismarck St. Mary's High School
"Ten Miles Up"

Robert Miller

Box 64
Casselton, ND 58012

Lincoln High School (Casselton)
"Vacuum Tube Fundamentals"

David A. Thompson

Route 1 Twin Lake Road
South Salem, NY 10590

Devils Lake Central High School
"Fuel, Tracking, and Instrumentation for Amateur Rockets"

Aldean Allen Wahl

Current Address Unavailable

Jamestown High School

"Amateur Seismology"

Nancy Ruth Barnard

Current Address Unavailable

Williston High School
"Analysis of Sagebrush"

C. Gary Fisher

1701 North Front St.
Crookston, MN 56716

Grafton High School
"Electromotive Series and Electroplating"

Johanna (Limvere) Keenan

2360 Newport Street
Denver, CO 80207

Valley City High School
"Synthetic Detergents"

Gunnar F. Unger

Harrison, ID 83833

Mandan High School
"Lightweight Concrete"

Richard Votava

919 Walnut Street
Kent, WA 98031

Grafton High School
"Understanding Magnetism"

Eleanor Weisenhaus

Current Address Unavailable

Devils Lake Central
High School
"Crystal Structure"

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1959

10th National Science Fair
Hartford, Connecticut

Donald J. Albers

925 Arbor Road
Menlo Park, CA 94025

Wahpeton High School
"The Eclipsograph"

Lawrence A. Anderson

2101 Manor Green Drive
Madison, WI 53711

Oakes High School
"Forward Motion and the Acceleration of Gravity"

Joy V. Bliss

42 Holly Drive
Olathe, KA 66062

Grafton High School

"The Elements and Their Valences"

Gay Leon Dybwad

Box 258 Route 2
Emmaus, PA 18049

Grand Forks Central High School
"Emmission Spectra of the Elements"

Robert Frederic Dugan

Current Address Unavailable

Jamestown High School
"An Application of Mathematical Systems"

Gerald Ehni

1498 Hodges Drive
Rio Rico, AZ 85621

Fessenden High School
"Cathode Ray"

Ruby Helen (Johnson) Graff

Route 1
Donnely, MN 56235

Minot Senior High School
"North Dakota Insects"

Marlin Kruckenberg

98 2nd Avenue N
Wahpeton, ND 58075

Beulah High School
"Highways of the Future"

Thomas R. Ladendorf

622 5th Avenue NW
Minot, ND 58701

Minot Model School

"Mammalogy"

Roger E. Larson

221 West 93rd St.
Bloomington, MN 55420

Devils Lake Central High School
"Skulls"

Patricia Ann (Toman) Eck

316 East Capitol Avenue
Bismarck, ND 58501

Mandan High School
"Physics of a Raindrop"

Jeanette Irene (Wire) Winge

1222 Iowa Avenue
Ames, IA 50010

Valley City High School
"Antibiotics"

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1960

11th National Science Fair
Indianapolis, Indiana

Elizabeth W. (Caldwell) Kaplin

1329 South Monroe Street
Arlington, VA 22204

Grand Forks Central High School

"Free-Living Protozoa"

Gay Leon Dyhwad

Box 258 Route 2
Emmaus, PA 18049

Grand Forks Central
High School
"Spectroscopic Experiments
With Densitometer
Comparisons"

Gerald D. Ehni

1498 Hodges Drive
Rio Rico, AZ 85621

Fessenden High School
"Cosmic Radiation"

LeRoy Norman Eide

10976 Shady Dell Drive
Sandy City, UT 84070

Williston High School
"Embryology of the Chick"

David G. Ellingson

Current Address Unavailable

Jamestown High School
"Architectural Acoustics"

Mary Kay Flath

Current Address Unavailable

Williston High School
"Science Related to Health"

Julian H. Fossen

263 Autumn Lane
Brunswick, OH 44212

Fessenden High School
"Gas Chromatography"

Murray P. Hamlet

30 Timberedge Road
Stow, MA 01775

Valley City High School
"Avian Air Sacs"

Lorelie N. (Mayer) Rollins

5541 40th St. South
Minneapolis, MN 55417

St. Mary's High School (Richardton)
"Thermoelectricity"

Peter Mazur

Current Address Unavailable

Shanley High School (Fargo)
"Atomic Mass Determination by
the Parabola Method"

Albin W. Sandau

1044 University
Spearfish, SD 57783

Hazen High School
"Car of the Future"

Aldean Allen Wahl

Current Address Unavailable

Jamestown High School
"High Speed Photography
and Fracture"

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1961

12th National Science Fair
Kansas City, Missouri

Donald Lee Dawkins

17520 12th Avenue N
Plymouth, MN 55447

Valley City High School
"The Driverless Automobile"

Curtis Joel Durand

1618 27th St.
Sacramento, CA 95816

Jamestown High School
"The Biological Effects of Sound"

Sylvia Ann (Frigstad) Knutsvig

Buxton, ND 58218

Hatton High School
"Amino Acid Nutrition of Chicks"

Alan J. Herr

Current Address Unavailable

Bismarck Central High School
"Seismology"

Patricia (Hermes) Smith

4933 D-Tower Road
Greensborough, ND 27410

Wahpeton High School
"Mental Telepathy"

Ruby Helen (Johnson) Graff

Route 1
Donnelly, MN 56235

Minot High School
"North Dakota Insects"

Richard Lee

Current Address Unavailable

Williston High SChool
"The Computer"

Leanne (Odegaard) Fernald

971 Fairway Drive
Boulder City, NV 89005

Jamestown High School
"Koppy Kids"

Allen A. Redmann

Route 1
Crystal, ND 58222

Walsh County Agricultural School

"Electrogermination"

Donna (Staudinger) Paulson

Taylor, ND 58656

St. Mary's High School (Richardton)
"Sensitivity and Resistance of Bacteria to Antibiotics"

Sherry Gay (Weihemuller) McGuiness

Box 524
Soldotna, AK 99669

Fessenden High School
"Educated Rats"

Galen Whipple

507 Bear Mountain Drive
Evergreen, CO 80439

Fessenden High School
"Pressure Rockets"

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1962

13th National Science Fair
Seattle, Washington

Don Alexander

Martin, ND 58758

Harvey High School
"Atlas ICBM"

Marilyn Arst

Current Address Unavailable

Jamestown High School
"Does Light Affect Sugar Content in Plants"

Cheryl Buschow

Current Address Unavailable

Minot High School
"Chick Embryology"

Jim Elliott

309 East Wright Blvd
Universal City, TX 78148

Valley City High School
"Drosophila melanogaster"

Thomas Gunn

Current Address Unavailable

Minot High School
"DNA (Deoxyribonucleic Acid)"

Alan Inglis

Current Address Unavailable

Mandan High School
"Measuring the Mass of an Electron"

Marvin Johnson

Current Address Unavailable

West Fargo High School
"Ion Exchange Fuel Cell"

Bill Joos

526 19th Street
Huntington Beach, CA 92648

Jamestown High School
"Gradient Acceleration Brake Meter"

Richard Arnold Leer

423 Anton Avenue
Marshfield, WI 54449

Devils Lake High School
"Open Heart Surgery"

Alan Lukes

RR #1 Box 190
Hazen, ND 58545

Park River High School
"Volumetric Respirometry"

Louie Schornack

924 South Chester
Park Ridge, IL 60068

Hillsboro High School
"A Transistorized Communication Receiver"

Clara Steir

2575 State Road
436 Apt. 1004
Winter Park, FL 32792

Richardton High School
"DDT Resistant Drosophila"

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1963

14th National Science Fair
Albuquerque, New Mexico

John Assumndstad

122 Richland Drive
Bluffton, OH 45817

Dickinson High School
"Liesegang Rings"

Cheryl Buschow

Current Address Unavailable

Minot High School
"Reproduction Cycle of the Hippocampus zostorae"

James Elliot

309 East Wright Blvd.
Universal City, TX 78148

Valley City High School
"Investigations of the Fruit Fly"

Gail L. Johnson

42 Hudson St. #5
New York, NY 10013

Wahpeton High School
"Thorazine and Metabolism"

William Joos

526 19th St
Huntington Beach, CA 92648

Jamestown High School
"Which Way Is Up?"

Sharon Kautzmann

Current Address Unavailable

Mandan High School
"Handedness in Cats"

Alan Lukes

RR #1 Box 190
Hazen, ND 58545

Park River High School
"Micro Amino Nitrogen Determination in Proteins"

Keath Marx

3933 Sun Stream Parkway
Virginia Beach, VA 23456

Assumption Abbey (Richardton)
"Antibiotics in Cactus?"

Michael Merrill

Current Address Unavailable

Jamestown High School
"Cosmology"

Dan Neuenschwander

Deceased

Fessenden High School
"Propagation of Vaccinia Virus in Embryonated Eggs"

Major Gerald Saltness

The Pentagon
Washington, DC 20000

Fessenden High School
"Comparative Anatomy"

Harriet Tobin

Rural Route
Hettinger, ND 58639

Beulah High School
"Muscae volitantes-Floaters in the Egg"

Leta (Trengen) Oberg

Hoople, ND 58243

Hoople High School
"Sequestering Effects of Chelating Agents on Polyvalent Ions"

Harry Young

Current Address Unavailable

Minot High School
"Surface Tension and Acceleration Due to Gravity Demonstrated by Strobe Effect"

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1964

15th National Science Fair
Baltimore, Maryland

Barton Beglo

Current Address Unavailable

Dickinson High School
"Zone Refining"

David Brubakken

3214 East Madison
Seattle, WA 98112

Hoople High School
"Separation of Phospholipids by Thin Film and Paper Chromatography"

Dennis L. Dau

6760 Caballers Ave.
Colorado Springs, CO 80911

Casselton High School

"Experiments with Phenol-Formaldehyde Resin"

De Ricci (Dooley) Horwatt

213 Spruce Street
Canonsburg, PA 15317

Bismarck St. Mary's High School
"Environmental Effects on Bacteria"

James Durst

Current Address Unavailable

Mandan High School
"Astro-Photography"

Jo-Ida Hansen

N-55G
Elliot Hall
75 East River Drive
Department of Psychology
University of Minnesota
Minneapolis, MN 55455

Jamestown High School
"The Measurement & Comparative Evaluation of Carbon Dioxide and Oxygen Production by Selected Aquatic Plants in a Closed Ecological System Under Controlled Illumination"

Diane (Helle) Koltes

10 Plover Circle
Ponder, TX 76259

Edmore High School
"Effects of Variable on the Heartbeat Rate of Daphnia"

Albert Kaeding

2823 West Creek Club
Missouri City, TX 77188

Devils Lake High School
"Diffusion of Electrolytes in Gels"

Cheryl (Normann) Poage

P.O. Box 75
Parker, CO 80134

Wahpeton High School
"Effects of Drugs Under Hypothermia"

Victor Paulson

4 Flint Way-Northland
Wellington, New Zealand

Portland High School
"Detecting Sodium With A Spectroscope"

John Piotrowski

Current Address Unavailable

Minot High School
"Electroluminescence and Homogeneous Processes"

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Richard Shepler

2 Ridgeview Drive
Bloomfield, CT 06002

Jamestown High School
"Decimal Values of Reciprocals of Integers Through Graphing"

Judy Sisk

Rural Route-Box 91
Cathay, ND 58422

Westhope High School
"Centrifugal Force Versus Geotropism"

Robert Stav

Current Address Unavailable

Dickinson High School
"Liesgang Rings-Investigation of Copper Chromate"

1965

16th International Science Fair
St. Louis, Missouri

Neil Clark

1415 West Gateway Circle
Fargo, ND 58102

Fessenden High School

"Experimental Drug Addiction in Mice"

Robert Gardner

Box 963
New Castle, CO 81647

St. Mary's High School
(New England)
"Extraction of Humic Acid From Lignite"

Harold Hjalmarson

Current Address Unavailable

Cavalier High School
"Construction and Use of a Simple Radio Telescope"

Don Koeppen

1335 Cameron Drive
Idaho Falls, ID 83402

Linton High School
"Polarography"

Chris Kosieracki

Bayview Estates
Devils Lake, ND 58301

Starkweather High School
"Automatic Translation"

Steven P. Lund

Current Address Unavailable

Bismarck Central High School
"Formations of the Laramide Epeirogeny"

(Kenneth) Michael Merril

Current Address Unavailable

Jamestown High School
"Velocity of Sound"

Robert A. Newman

3704 Swain Drive
Modesto, CA 95356

Minot High School
"Can Chromous Compounds Be Made?"

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Cheryl (Norman) Poage

P.O. Box 75
Parker, CO 80134

Wahpeton High School
"Pentobarbital Sodium Influenced by 2-4 Dinitrophenol"

Alan Schmidt

218 42nd Ave. NE
Columbia Heights, MN 55421

Valley City High School
"Synthesis of Peptides"

Jim Schnell

Current Address Unavailable

Dickinson High School
"Reptiles and Amphibians"

John Sorenson

Current Address Unavailable

Jamestown High School
"Do Algae Need Sleep?"

Particia Thompson

Current Address Unavailable

Williston High School
"Oxygen Uptake in Normal and Pinealectomized Rats"

(Howard) Randy Woodward

8321 North 46th Street
Omaha, NE 68152

Walhalla High School
"Laser"

1966

17th International Science Fair
Dallas, Texas

David R. Adams

Current Address Unavailable

Edmore High School
"Computer Control"

Bruce Burkett

426 Towner Drive
Devils Lake, ND 58301

Jamestown High School
"Water Pollution of the James River in North Dakota"

James Eraker

114 MacKubin-Apt # 4
St. Paul, MN 55102

West Fargo High School
"Effects of Amino Acids on Spontaneous Electrical Activity on Crustacean Ganglia"

Danny Goehring

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Bismarck High School
"Bioluminescence"

Michael Harty

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Grand Forks Central High School
"Cybernetics and the Autonomic Nervous System"

Lawrence Jacobs

Route 1 Box 394 j
Sherwood, OR 97140

St. Mary's High School
(New England)
"Effects of Oral Antiseptics on Mouth Bacteria"

H. Morgan Lacy

3719 River Drive
Fargo, ND 58102

Fessenden High School
"Nerve Transplants and Its Effects Upon Regeneration"

Karen A. Lind

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Williston High School
"Factors Influencing Copper Metabolism"

Steven P. Lund

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Bismarck High School

"Fort Union Group"

Robert H. Rotering

Tremaine C-Dutch Village
Albany, NY 12204

St. Mary's High School (New England)
"Showing P32 Uptake by Autoradiography"

Alan Schmidt

218 42nd Avenue NE
Columbia Heights, MN 55421

Valley City High School
"PPi-GL Phosphotransferase Enzymetriad"

ReNee J. Selig

4200 IDS Center
Minneapolis, MN 55402

Jamestown High School
"Chromosome Culture Variations -in vitro"

Greg Solberg

1808 South 20th St.
LaCross, WI 54601

Bottineau High School
"Aerospace Instrumentation and Trajectory Analysis"

Margaret Ann (Urlaub) Viebrock

Box P
Waterville, WA 98858

Walhalla High School
"Plant Element Deficiencies"

1967

18th International Science Fair
San Francisco, California

Rick Amundrud

3556 6th St. NW
Rochester, MN 55901

Edmore High School
"Dimethyl Sulfoxide-A New Drug"

Mike Barron

P.O. Box 1114
Glasgow, MT 59230

Jamestown High School
"An Ecological Study of Peromyscus maniculatus"

Delano R. Eslinger

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"Inorganic Reactions of K2HgI4"

Elaine K. Ford

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Minot High School
"Cryobiological Research With The Rana pipien Heart"

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Cavalier High School
"Do Sunspots Directly Emit Solar Radio Noise?"

Francis A. Hunkler

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Assumption Abbey (Richardton)
"Bacteriostatic Chemicals in Native North Dakota Plants"

Chris Kosieracki

Bayview Estates
Devils Lake, ND 58301

Starkweather High School
"Voice Identification by Means of the Sound Spectrograph"

Robert McKibben

117 Northwest 3rd
Valley City, ND 58072

Valley City High School
"The Direct Current Nontransfer Plasma Generator"

Janet L. (Peter) Dell

3894 S. Fraser St.
Aurora, CO 80014

Valley City High School
"Heredity's Role in Blood"

Jan (Rohs) Fouks

8564 Demontreville Trail
Lake Elmo, MN 55042

Hoople High School
"Nutritional Effects on Liver Inorganic Pyrophosphatase"

Robert Rotering

Tremaine C-Dutch Village
Albany, NY 12204

New England High School
"Experimental Magnetotropic Proof for the Geotropic Effect in Plants"

Jill Ruzicka

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Mandan High School
"Pupillometrics-Attitude and Pupil Size"

Jeanne Smith

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Bismarck High School
"Immunology: Blood Antigens and Antibodies"

Marvin Thurn

135 N South Drive
Pittsburg, PA 15237

Wishek High School
"Calculating Roots"

1968

19th International Science Fair
Detroit, Michigan

David Bauman

181 Downington Avenue
Salt Lake City, UT 84115

Bismarck High School
"Laser Photography"

Michael C. Bender

Current Address Unavailable

Jamestown High School
"Pitch and Tone of Woodwinds"

Cheryl M (Engleman) Kalberer

1602 Cologne Drive
Bismarck, ND 58501

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"Primary Bovine Cell Culture"

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"Applications of Radioisotopes in Science"

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"Aspects of Mathematics"

Diane (Nash) Baker

Route 2
Butte, NE 68722

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"Sulfer-Lignite Effects on Soils"

Darrell Schoenig

432 Clover Lane
Fort Collins, CO 80521

Valley City High School
"How Xanthophyll Affect Pigmentation Of Chickens"

Joan Thompson

4518 Monroe St. NE
Columbia Heights, MN 55421

Williston High School
"High Speed Photography"

Mark Kokott

149 Beacon Street
San Francisco, CA 94131

Jamestown High School
"Is Jamestown Too Small to Redesigned?"

Robert McKibben

117 Northwest 3rd
Valley City, ND 58072

Valley City High School
"Non-Transfer Plasma Generator"

Royce S. Schaeffer

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Harvey High School
"Effects of Indole-3-Acetic Acid on Stem Elongation"

Curtis Thom

1719 Pitts Avenue
Bremmerton, WA 98310

Velva High School
"CT-311 Data Processor"

Robert L. Wilson

300 Gramercy Ave
Minneapolis, MN 55405

Pembina High School
"Effects of Gibberellic Acid on Growth of Chick Embryos"

1969

20th International Science Fair
Fort Worth, Texas

Mike Belyea

500 N Duke St.- Apt 55-201
Durham, NC 27702

Rolette High School
"Operant Conditioning"

Nancy C. (Cornatzer) Turner

Rt. 1 Box 42
Ardmore, TN 38449

Grand Forks Central High School
"Studies on the Mechanism of Estrogen-Induced Serum Ceruloplasmin"

Richard Burrows

Current Address Unavailable

Bismarck High School
"Urban USA-2001"

Cheryl (Engleman) Kalberer

1602 Cologne Drive
Bismarck, ND 58501

Hazelton High School
"Serum Neutralization Tests on Infectious Bovine Rinotrachaitis Virus in Vitro"

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Edward Kaeding

17857 Notre Dame St. NE
Forest Lake, MN 55025

Devils Lake High School
"Computer Analysis"

Paul Kube

4417 Pleasant Valley Ct.
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Grand Forks Central High School
"Sodium Chloride Hydrolysis"

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Dickinson High School
"Aspects of Mathematics"

Larry Lysne

Maddock, ND 58348

Kensal High School
"Fox Food Habits"

Connie Norhiem

1013 N 16th St.
Fargo, ND 58102

Jamestown High School
"A Statistical Study of Biology of Ambystoma Blood"

Diane (Pearson) Sams

1812 Astrid Place West
Montgomery, AL 36117

Dickinson High School
"Autodimrophy of Primary Cell Wall Protein in Peas"

Darrell Schoenig

432 Clover Lane
Fort Collins, CO 80521

Valley City High School
"Abnormal Stimulation of Ovulation in the Queen Bee"

Corrine Scofield

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Williston High School
"Temperature Telemetry"

Beth (Sherman) Polito

89 Craig Drive
Merced, CA 95340

Valley City High School
"Polio, Measles, and Mumps Vaccines"

John Young

Current Address Unavailable

Williston High School
"Copper Sensitive Areas in the Rat Hypothalmus"

1970

21st International Science Fair
Baltimore, Maryland

David Cameron

708 2nd Avenue NW
Mandan, ND 58554

Beach High School
"Comparison and Correlation of Paleocine Bogs"

Cheryl (Engleman) Kalberer

1602 Cologne Drive
Bismarck, ND 58501

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"In Vitro Research of Artificially and Naturally Produced Antibody Titer Against the IBR Virus"

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George Gillies

University of Virginia
McCormic Road
Charlottesville, VA 22903

Rugby High School
"Techniques in Astrophotography"

Cheryl Goldsack

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Pasadena, CA 91101

Rock Lake High School
"Protection Against a Viral Disease By the Use of Interferon"

Esther Hjalmarson

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Cavalier High School
"Assaying the Enzyme Catalase By Manometry"

Gregory Horton

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Dickinson High School
"Nuclear Magnetic Resonance Spectroscopy"

Carl Muus

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Bishop Ryan High School (Minot)
"Self-Contained Closed Ecological System"

Mark Pavicic

1720 10th Street South
Fargo, ND 58102

Fargo South High School
"Coordination of Pyridine 1 Oxides with Ox Ovanadium IV"

Darrell Schoenig

432 Clover Lane
Fort Collins, CO 80521

Valley City High School
"The Effect of Royal Jelly on Induced Skin Lesions"

Barbara Solee

6400 Barrie Road #911
Edina, MN 55424

Williston High School
"Hamster Habits Male vs Female"

Paul Tomasek

432 Austin Blvd Apt 3-W
Oakpark, IL 60302

Grand Forks Central High School
"Lichen Resynthesis"

Jeff Vickers

Current Address Unavailable

Williston High School
"Light Energy Requirement of the Photosynthetic Reaction Using Autoradiography"

Larry Volk

601 3rd Ave NW
Jamestown, ND 58401

Jamestown High School
"Effects on Perplaneta american"

Richard Willoughby

Rural Route 1 Box 46A
Ruso, ND 58778

Turtle Lake High School
"Meteroltropism"

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1971

22nd International Science Fair
Kansas City, Missouri

Karen Anheluk

1526 North 13th
Bismarck, ND 58501

Belfield High School
"Effect of Carbon Monoxide on Humans"

John Brochat

Current Address Unavailable

Williston High School
"Low Temperature Oil Flow By Gas Injection"

Jacolyn (Carlson) Leibold

C/O HOK +4
PO Box 5921
Riyadh 11525
Saudi Arabia

Wahpeton High School
"A Study of the Camponotus Herculanius pennsylvanicus"

Robert G. Ceynar

1705 Winding Hill Rd--#102
Davenport, IA 52807

Watford City High School
"Should We Be Concerned?"

William Fristad

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Mandan High School
"Polymerization of Vinyl Ether"

Cheryl Goldsack

135 N Oakland-PO Box 828
Pasadena, CA 91101

Rock Lake High School
"IBR and Rhinopneumonitis Viruses in Vitro Using Serum Neutralization"

Kris (Hansen) Swanson

Route 3 Box 155-A
Hudson, WI 54106

Valley City High School
"Effects of Digestive Process on Weed Seed Germination"

Lloyd Johnson

160 Millside
St. Charles, MO 63031

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Tim Krause

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Idalia, CO 80765

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"Earthquake Prediction and Detection"

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"A Closed Ecological System"

Neal Nygard

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"Thrust Impulse and Its Influence Upon Rocket Acceleration"

Brenda L. Reis

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"Transplantation of Tissues in Muscles Treated with Antilympocutes"

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Floyd Rollefstad

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"Optoelectronics"

Rex Skodje

1784 Quince Avenue
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Bismarck High School
"Ultraviolet Radiation on Pollutants"

Barbara Solee

6400 Barrie Road #911
Edina, MN 55424

Jamestown High School
"Effect of Noise on Hamster Behavior Pattern"

Jeffrey Vickers

Current Address Unavailable

Williston High School
"Apparatus for Cultivation of Excised Plant Tissue by Submerged Culture in Vitro"

1972

23rd International Science Fair
New Orleans, Louisiana

Dave Beste

406 South Marian
Thief River Falls, MN 56701

Rugby High School
"Photophyethsmograph"

Robert Ceynar

1705 Winding Hill Road
Davenport, IA 52807

Watford City High School
"Our Daily Bread"

Lorna (Charon) Lawrence

4930 SE 47th Avenue
Portland, OR 97206

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"Factors that Effect Longevity and the Efficiency of the Autonomic Nervous System in Snakes"

Kris (Hansen) Swanson

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"The Effect of Lactic Acid and the Digestion Process on Germination of Weed Seeds"

Russell Jensen

600 S. Dearborn Apt. 1610
Chicago, IL 60614

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"Ultrasonic Temporal Reference Holography"

Mark Koponen

2506 Avenue A
Bismarck, ND 58501

Bishop Ryan High School (Minot)
"Bacillus subtilis Transformation System"

Emery Mehrer

Box 104
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"Nicotine Effects on Embryonic Developments"

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"Microterella"

Gregory Phister

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"Mechanical Study of the Diels-Alder RXN"

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"Transplantation of Autologous, Islogous, and Homologous Tissue In Two Strains of Mus Musculus

Floyd Rollefstad

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"Microspectroscopic Analysis By High Energy Liquid and Ruby Lasers"

John Savereide

1728 3rd Avenue South
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"Pupil Size Variations As Affected By Sensory Stimuli"

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"The Effects of Sulfur and Nitrogen Oxides on the Photo Oxidation of Paraffin Hydrocarbons"

Steven Williams

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Ann Arbor, MI 48103

Cleveland High School
"RNA and How It May Be Used For Education"

Michael Zook

Beach, ND 58621

Beach High School
"Further Investigation of Golden Valley County Clays"

1973

24th International Science Fair
San Diego, California

Jerry Blotter

Coleharbor, ND 58531

Turtle Lake High School
"Response of Minnows to Methylmercury"

Billy Ceynar

Rural Route 1 Box 44
Arnegard, ND 58835

Watford City High School
"The Versatile Soybean"

Bill Cornatzer

11720 4th St. NE
Blaine, MN 55434

Grand Forks Central High School
"The Effects of Zinc Deficiency on the Alcohol-Hydrozenase Metalloenzyme of the Rat"

William Fields

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Cavalier High School
"ISO-PRO"

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Valley City High School
"The Rate of Flow of Degesta Through the Ruminant Digestive System"

Allan Hanson

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Minot, ND 58701

Kenmare High School
"Flame Emission Spectra"

Brian Heitkamp

RR #1 Box 83 Circle K Estate
Bismarck, ND 58501

Wahpeton High School
"Electronic Random Number Generator"

Joan (Heuchert) Schumm

2408 Emerald Court #207
Woodridge, IL 60517

St. Thomas High School
"The Effect of Centripetal Force Has on Plant Growth"

Rae McIntee

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Williston High School
"Comparison of the Efficiency of Various Vitamins in Treatment of Peritonitis cause by Pseudomonas aenginosa"

Grant Metz

1513 N Payne ST-Apt A2-2
New Ulm, MN 56073

Gackle High School
"Magnetic Growth Response Stimulant"

Fredrick Mitzel

Quarters 2817A
Fort Lewis, WA 98433

St. Mary's High School (Devils Lake)
"Pilobolus Photo HydroRocket"

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"Immunogenetics: Study of Graft Rejection in Mus musculus and Transfer Ability of Oryctolagus cunniculus"

Mark Roster

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Beach High School
"Investigation of Mercury in Pedioceter phasianellus of Golden Valley County

Rex Skodje

1784 Quince Avenue
Boulder, CO 80302

Bismarck High School
"A Study of Oxygen Atom Reactions With Propane"

Patrick Spilmen

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St. Mary's High School (Bismarck)
"An Answer to The Energy Crisis"

Mike Towarnicky

3952 Shattuck Avenue
Columbus, OH 43220

Fessenden High School
"Radiation: Its Effect on Chick Embryos"

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1974

25th International Science Fair
Notre Dame, Indiana

Edie Broschat

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Williston High School
"The Metabolic Affects of Combustion Pollutants on the Chick Embryo With Respect to the Chorioallantoic Membrane"

Dale Ficek

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Dickinson High School
"The Digital Computer"

Jeffrey Gunderson

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Central Valley High School (Buxton)
"Is Hydrogen the Key?"

Paul Gutschmidt

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Devils Lake, ND 58301

Gackle High School
"Probability"

Joan (Heuchert) Schumm

2408 Emerald Court #207
Woodridge, IL 60517

St. Thomas High School
"Plant Growth and Auxin Distribution as Influenced by Centripetal Force"

Deborah Daseman

425 e 69th St Apt 3B
New York, NY 10021

Linton High School
"Chemical Study of the Cell Wall of Trichoderma viride"

Gerald Kordonowy

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Belfield High School
"Project Pathfinder-Investigative Study of Experimental Lifting Bodies"

Brian Martinez

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Minot High School
"Displacement of Mass Propulsion"

Emery Mehrer

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"Can Plants Scream?"

Timothy Moore

1244 Churchill
St. Paul, MN 55103

Turtle Lake High School
"Nicotinic Effects on the Development of One Breed of Gallus gallus"

William Peterson

922 Chatham Park Drive
Pittsburgh, PA 15220

Wahpeton High School
"The Mechanism and Kinetics of Hydroxide Attack on 1 Chloro 3 Bromopropane"

William Ptacek

Rural Route
Oakes, ND 58474

Oakes High School
"Bill's Original No. 2"

Neil Shepler

2129 16th Avenue
Kenosha, WI 53140

Jamestown High School
"Radiation Induced Mutations in Drosophila melanogaster"

Doreen Simpson

Rock Lake, ND 58365

Bisbee High School
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Mike Towarnicky

3952 Shattuck Avenue
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"Radiation: Its Effect on Chicks and Chick Embryos"

1975

26th International Science Fair
Oklahoma City, Oklahoma

Maninder Bhugra

1311 Red Leaf Lane
East Lansing, MI 58823

Valley City High School
"Investigations in Control of Dental Plaque"

Allen Dominek

2565 Riverside Drive #3-K
Columbus, OH 43221

Williston High School
"Substrate-Wire Mask Distance Effects on Penumbra Formation"

Tim Eslinger

Coleharbor, ND 58531

Turtle Lake High School
"Experiments With Artificial Snow Fences"

Bernie Fischer

Mott, ND 58646

Rhame High School
"Fetal uv Maternal"

Carol Griffin

1003 Justin Lane #2032
Austin, TX 78757

Valley City High School
"A Bacteriological and Chemical Analysis of The Lake Astabula Drainage Area"

Crystal Haigh

Deceased

Beach High School
"Variations on Sexual Ratios of Drosophila melanogaster in Relation to Various Musical Forms"

Joan (Heuchert) Schumm

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"The Relationship Between Hormones and Plant Growth Under Influence of Centripetal Force"

Marlen Kemmet

Wood Magazine
C/O Better Homes & Gardens
Locust at 17
Des Moines, IA 50336

Napoleon High School
"Solar Energy, Energy of the Future"

Maren (Lindholm) Daley

2507 Clover Drive
Grand Forks, ND 58201

Midway High School
"Electrical Resistance of the Skin"

Rae McIntee

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"Wavelength: Effect on the Epiphusis Cerebri in Normal and Pinealectomized Rats"

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Robert Ness

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"The Dynamic Proportion of the Thunderstorm and Tropical Storm"

Jay Pearson

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"Chemical Transfer of a Learned Task"

Theodore Poppke

836 West Street
Panama City, FL 32404

Bismarck High School
"Bacterial Conjugation and Transferable Drug Resistance"

Jim Towarnicky

304 Palmer Drive
Parkersburg, WV 26104

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Mike Towarnicky

3952 Shattuck Avenue
Columbus, OH 43220

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"The Extraction and Bio-Assay of Insulin From Beef Pancreas"

Michelle Vonrueden

303 6th Street NW
Riverside, ND 58078

Wahpeton High School
"The Effect of Vitamins on the Calcium to Phosphorous Ratio in Blood Serum"

1976

27th International Science Fair
Denver, Colorado

Eric Aslakson

264-33 Cal Tech
Pasadena, CA 91125

Edmore High School
"Observations of Ultraviolet Light With Leguminosae Phaseola and Cactaceae Pilocereus in Connection With Chloro-fluoromethane Destruction of the Ozone Shield"

Philip Anfinrud

159 E. University Village
Ames, IA 50010

Aneta High School
"The Effect of Freon on Ozone"

Steven Clemenson

4497 Pershing Apt 213
St. Louis, MO 63100

Devils Lake Central High School
"Antimicrobial Effectiveness in Vitro"

Jason Huso

1700 West 18th Street
Sioux Falls, SD 57106

Aneta High School
"Purification of Water for Domestic Use"

Steve Kemp

Box 23
Hamelton, ND 58238

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"Wing Construction and Design"

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Pasadena, CA 91125

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Maren Lindholm

2507 Clover Drive
Grand Forks, ND 58201

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"The Effects of Sensory Produced Disjunctive Reaction Situations"

Paul Muus

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Bishop Ryan High School (Minot)
"The Solar Rotor II: A Tota-Tower For Porta-Power"

Paul Orchard

234 Randolph Drive Apt 215D
Madison, WI 53717

Bismarck High School
"Analysis of free Amino Acids in Phycomyces blakesteranus"

William Ptacek

Rural Route
Oakes, ND 58474

Oakes High School
"My Electric Motor V-4"

Tom Thompson

3853 Renee Drive
Bismarck, ND 58501

Dickinson High School
"The Liesegang Experiment"

John Meisner

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Bismarck High School
"Isolation of Lytic Coliphage From An Oxidation Lagoon"

Robert Ness

Apt 8-535 Harvard Street
Grand Forks, ND 58201

Sykeston High School
"The Great American Twister"

Patti (Polries) Penas

1609 Omaha Drive
Bismarck, ND 58501

Sykeston High School
"Effect of Various Stimuli on Hydra"

Paul Robinson

Current Address Unavailable

Williston High School
"Electron Diffraction"

Joann (Zachmann) Buchholz

Golva, ND 58632

Golva High School
"Possible Hearing Loss Due to Hair Spray"

1977

28th International Science Fair
Cleveland, Ohio

Philip Anfinrud

159 E. University Village
Ames, IA 50010

Aneta High School
"Nox and CEx Cly Related Ozone Destruction"

Lavonne Berg

1120 Summit
Bismarck, ND 58501

Bowbells High School
"The Effects of Cytosar on the Growth Inhibition of HL, Leukemia in Mus musculus"

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John Boe

Box 1175
Beulah, ND 58523

Turtle Lake/Mercer High School
"Effect of Spoil Piles on Plant Growth"

Todd Dammen

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Cavalier High School
"Storing Solar Energy"

Charlene (Fetting) Han

Leonard, ND 58052

Finley High School
"Discrimination Against Lefties"

Darrell Hovde

Current Address Unavailable

Williston High School
"The Minto Wheel"

Greg Kuntz

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Turtle Lake/Mercer High School
"A Comparative Oscilloscope Analysis of Human Speech"

Mike LeDuc

R.R. #1 Box 139-B
Moorhead, MN 56560

Bishop Ryan High School
"Remote Sensing and the R.S.B.I."

Steve Pavicic

1720 10th St. South
Fargo, ND 58102

Fargo South High School
"Z-10 Electro-Mechanical Computer"

Frank Cudworth

Route 1 Box 68
Sheyenne, ND 58374

New Rockford High School
"Inducing the Transition from Laminar to Turbulent"

Steven Ditmer

328 General Arnold Blvd
Ft. Worth, TX 76114

Mott High School
"The Construction of a Complex Probability Model Based on a Sampling of NFL Statistics"

Bradley Heck

1750 W. Baston St. Apt 1030
Chandler, AZ 85224

Napoleon High School
"Solar Heating"

Lynn Kinneberg

Rural Route 1
Wahpeton, ND 58075

Richland High School (Colfax)
"The Doppler Effect"

Steven Kuske

Box 554
Fessenden, ND 58438

Fessenden High School
"Wind Generator: Power of the Future"

Robert Ness

Apt 8-535 Harvard Street
Grand Forks, ND 58201

Sykeston High School
"An Air Force Suction Based Mechanism For Tornadic Induction"

Kevin Stroh

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Dickinson High School
"Dirty Waters' Cure--Historic and Scientific Ways to make it pure"

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1978

29th International Science Fair
Anaheim, California

Peter Benson

910 South Drive
Fargo, ND 58103

Fargo South High School
"Computer Stimulation of Solar Energy Systems"

Glenn Ermer

3725 University Ave #304
Grand Forks, ND 58201

Cavalier High School
"Effect of CO on Blood Clotting Time"

Scott Gunderson

Current Address Unavailable

Williston High School
"Lite Com"

Bradley Heck

1750 W. Baston St. Apt 1030
Chandler, AZ 85224

Napoleon High School
"Home of the Future"

Ron Heubner

Current Address Unavailable

Williston High School
"Laser Communication: Digital Data"

Jeff Klein

125 20th NE 145th St. #31
Kerkland, WA 98033

Devils Lake Central High School
"Enhancing Phagocytosis"

Wade Kodonowy

Current Address Unavailable

Dickinson High School
"In Search of the Greenhouse of the Future"

Mike LeDuc

RR #1 Box 139-B
Moorhead, MN 56560

Bishop Ryan High School
"Aku Weeker"

Eugene Liu

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Fargo North High School
"Low Speed Wind Tunnel"

Paul Muus

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Bishop Ryan High School
"Prairie Power"

Sheila Olson

2523 7th Ave S #14
Grand Forks, ND 58201

Turtle Lake/Mercer High School
"A Comparative Study of the Effects of Nicotine on Hereditary Transmission of Visible Traits in Drosophila melangaster"

Jeffrey Oster

2509 N. 9th St.
Fargo, ND 58102

Jamestown High School
"Enzymology"

Jean (Page) Charzempa

2336 "G" Kenmore Ave
Charlott, NC 28204

Cavalier High School
"Memory-How Good Is Yours?"

Pamela Redmann

Current Address Unavailable

Bismarck High School
"Caution: The Food You Consume May Be Dangerous To Your Health"

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Edward Towarnicky

G-4606 Beecher Road Apt J2
Flint, MI 48504

Fessenden High School
"Antibiotic Bacterial Resistance"

John Wetch

1012 Northwestern Drive
Grand Forks, ND 58201

Killdeer High School
"Light Curve Comparisons of Long Period Variables, S and T Ursae major"

1979

30th International Science Fair
San Antonio, Texas

Peter Benson

910 South Drive
Fargo, ND 58102

Fargo South High School
"Time of Decent"

Beth Ehlis

908 Severonson NDSU
Fargo, ND 58102

St. Mary's High School (New England)
"Establishment of a Monolayer Tissue Culture For Preliminary Work in Viral Studies"

Chuck Eldredge

Box 205
Fessenden, ND 58438

Fessenden High School
"Photoelectric Measurement of Water Softness"

Mitchell Gallagher

1145 N. 12th St.
Fargo, ND 58102

Jamestown High School
"Effects of Atmosphere Variations on Precipitation"

Todd Goven

Turtle Lake, ND 58575

Turtle Lake/Mercer High School
"The Long Range Effects of Three Common Fertilizers on Wheat"

Jeff Gunderson

2309 S. 12th St. Apt3
Grand Forks, ND 58201

Watford City High School
"Algae"

Ron Huebner

Current Address Unavailable

Williston High School
"Light Wave Communication System Design Operation and Analysis"

Holly (Johnson) Mawby

814 5th St. S.
Wilmar, MN 56201

Minot High School
"Tissue Culture: New Technique in Commercial Propagation"

Joseph Jay Kisch

Brannon Hall 216 B UND
Grand Forks, ND 58201

Jamestown High School
"Carrot Clone-Inc. Is it Possible?"

Paul Knutson

67 Mallets Bay Ave Apt 4
Colchester, VT 05446

Fargo North High School
"A CCD Television System"

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Curtis Novak

Rural Route
Fordville, ND 58231

Fordville High School
"Azotobacter chroococcum: A Nitrogen Fixer"

Sheila Olson

2523 7th Ave S #14
Grand Forks, ND 58201

Turtle Lake/Mercer High School
"Experimental Studies of Nicotine Induced Genetic Mutation in Drosophila melanogaster"

Ruth Retzlaff

Aneta, ND 58212

Aneta High School
"Cold Air Inspiration Effect on Cardiac Electrical Activity"

Timothy Spilman

Current Address Unavailable

St. Mary's High School (Bismarck)
"Polymer Concrete"

Edward Towarnicky

G-4606 Beecher Road Apt J2
Flint, MI 48504

Fessenden High School
"Multiple Sclerosis: Early Diagnosis by Electoimmuno Diffusion Determination of IgG and Albumin"

Lori (Vossler) Walcker

Box 17
Turtle Lake, ND 58575

Turtle Lake/Mercer High School
"The Effect of Cortisone on the Development of the Chick Embryo"

1980

31st International Science Fair
St. Paul, Minnesota

Loran Borud

P.O. Box 6889
Stanford, CA 94305

Minot Central High School
"Combination Sequences Derived From A Lattice"

Christopher Cannon

502-90-9139
E TRP. 212 ACR
AFO NY 09139

Jamestown High School
"Lyophilization"

Beth Ehlis

908 Severonson NDSU
Fargo, ND 58105

St. Mary's High School (New England)
"In Vitro Research of the IBR Virus"

David Geroge Ehlis

P.O. Box 4067 USCC
West Point, NY 10997

St. Mary's High School (New England)
"Vertical Reel Sunflower Attachment"

Kathleen (Gemmill) Bloom

Fordville, ND 58231

Fordville High School
"Allelopthic Effects of Setaria lutescens on Grain Sorghum"

Cammy Hiaasen

6603 Clemens Apt 1 West
University City, MO 63130

Minnewaukan High School
"The Effects of Hydrogen Sulfide on Plant Life"

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Deanne R. Hill

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Bismarck High School
"The Effects of Ingested Auxins of the Metamorphosis of Myzus persiceae"

Vonda Dell Jandt

DSC Delong Hall
Dickinson, ND 58601

Beach High School
"Teratogenic Effects of Alcohol on Embryology"

Wendy Johnson

Box 723 Concordia College
Moorhead, MN 56560

Richland High School
"The Star Spangled Heavens

Joseph Jay Kisch

Brannon Hall 216 B UND
Grand Forks, ND 58201

Jamestown High School
"Hormonal Regulation in Vitro on Asparagus densiflorins and Nicotiana tabacum"

Todd Koenig

Bowlinger Trailer Court
Harvey, ND 58341

Fessenden High School
"Heat Your Home With Friction"

Roland Lobsinger

Box 657 Cornell College
Mount Vernon, IA 52314

Bishop Ryan High School (Minot)
"Search for Carbohydrates For Fuel Alcohol Production"

Debbie Ravnaas

406 Dakota Hall MSC
Minot, ND 58701

Turtle Lake/Mercer High School
"Cloning: In Vitro Propagation of Saintpaulia ionantha"

Scott Reistad

215 E. Arbor Ave Apt 208 C
Bismarck, ND 58501

Leonard High School
"Antiseptics vs Healing"

Ruth Retzlaff

Aneta, ND 58212

Aneta High School
"Cold Air Inspiration Effect On Cardiac Electrical Activity"

Edward Towarnicky

G-4606 Beecher Road Apt J2
Flint, MI 48504

Fessenden High School
"Oligoclonal Bands: ig/alb Ratios/Measles Titers and HLA-DRW2 Antigens in Multiple Sclerosis"

1981

32nd International Science Fair
Milwaukee, Wisconsin

Robert Ash

227 Smith UND
Grand Forks, ND 58202

Riverdale High School
"The Rutz Wind Turbine"

Loran John Borud

P.O. Box 6889
Stanford, CA 94305

Magic City High School (Minot)
"Euler's Phi Function: Totitives Explored"

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Beth Ehlis

908 Severonson NDSU
Fargo, ND 58105

St. Mary's High School (New England)
"Isolation and Further Research on the IBR Virus In Vitro"

David Ehlis

P.O. Box 4067 USCC
West Point, NY 10997

St. Mary's High School (New England)
"Innovative Structural Insulation"

John Thomas Eldredge

Box 205
Fessenden, ND 58438

Fessenden High School
"Wagtailed Wind Machine"

Mark W. Ellingson

Box 313
Northwood, ND 58267

Maddock High School
"Solar Assisted Heat Pump"

Daria (Galbreath) Freeberg

809 Maple St. #11
Lisbon, ND 58054

Enderlin High School
"Obtaining By-Products From Grapefruit Rinds"

Ronald Gallagher

1101 1st Ave. South
Fargo, ND 58102

Jamestown High School
"Engineering Chainwheels For Efficiency"

Nadine Carol Gassner

The Open University-Biology Dept
Milton Keyness
MK7 6AA
England

Fargo North High School
"Studies on the Bacteria of the Phizosphere of Sugar Beets"

Wade Kordonowy

Current Address Unavailable

Dickinson High School
"The Use of Zinc As A Fertilizer Applied to Durum Wheat"

Brent William Richtsmeier

345 Jefferson St. Apt. 1
Hutchinson, MN 55350

Clifford/Galesburg High School
"Effect of Iron on Hemoglobin of Pigs"

Stephanie Schoenock

18 N. Washington
Grand Forks, ND 58201

Hazen High School
"Study of a Marsh"

Kevin Lon Thorlakson

R.R. 2 Box 686
Cavalier, ND 58220

Cavalier High School
"Modern Air Conditioning"

Joe M. Torgerson

143 Johnson Hall NDSU
Fargo, ND 58105

Bishop Ryan High School (Minot)
"The Computer--Today's Controller"

Mary Beth Towarnicky

G 41 W Comstock Hall
210 Delaware S.E.
University of Minnesota
Minneapolis, MN 55455

Fessenden High School
"Nail and Skin Topography Using a New Photographic Technique"

Kevin Urdahl

PL-1556 Concordia College
Moorhead, MN 56560

Jamestown High School
"Control of Juvenile Hormone the Oncopeltus fasciatus"

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1982

33rd International Science Fair
Houston, Texas

Randy Lee Appert

Box 1409 NDSSS
Wahpeton, ND 58075

Hazelton High School
"Robotics: The Making of A Robot"

Beth Ehlis

908 Severonson NDSU
Fargo, ND 58105

St. Mary's High School (New Englan
"Assay of Antibody Titers: Passive Immunity and Various Immunologi Methods"

John Thomas Eldredge

Box 205
Fessenden, ND 58438

Fessenden High School
"A Wagtail Powered Flywheel"

John Isaac Folland

Crane Hall Room 200 MSC
Minot, ND 58701

Tolley High School
"Radio: Frequency's Effect on Signal Strength"

George Thomas Gassner

The Open University/Biology Dept
Milton Keynes
MK7 6AA
England

Fargo North High School
"Placental Hexokinase"

Dave Len Heringer

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Jamestown High School
"Effects of Pesticides on African Clawed Frogs"

Joan Lee Hruby

R.R. 1 Box 94
Wilton, ND 58579

Wilton High School
"Field Studies of Free-Living and Root-Dwelling Bacteria on Legume and Non-legume Plants"

Christine Hugelen

South Wieble Room 258 NDSU
Fargo, ND 58105

Maddock High School
"Production of Beta-Lactamase Using Pennicillin G on Streptococci"

Scott C. Lynnes

343 Stockbridge Hall NDSU
Fargo, ND 58105

Leonard High School
"The Hearing of Farmers"

Brent William Richtsmeier

345 Jefferson St. Apt #1
Hutchinson, MN 55350

Clifford/Galesburg High School
"Effect of Iron on Pig Hemoglobin"

Julie Marie Seilstad

Forest River, ND 58233

Fordville High School
"Effect of Drugs on the Dynamic Activities of Daphnia"

Shari Steinwand

2508 8th St. N. Apt 3
Fargo, ND 58102

Belfield High School
"Lichens: A Comparison of Characteristics in Three Environments"

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Craig Arthur Tinus

651 N. Harbor Blvd. #109
San Pedro, CA 90731

Bottineau High School
"Intelligence in Marine Animal Life"

Mary Beth Towarnicky

G 41 W Comstock Hall
210 Delaware S.E.
University of Minnesota
Minneapolis, MN 55455

Fessenden High School
"Aging: A Chemical, Cellular and Physiological Analysis"

Kevin Urdahl

PL-1556 Concordia College
Moorhead, MN 56560

Jamestown High School
"Precocene-Induced Inhibition of Vitellogenesis in the Milkweed Bug"

Tammy Volk

P.O. Box 177
University of Dallas
Irving, TX 75061

Devils Lake Central High School
"Effects of Lake Chemicals on the Rate of Algae Growth"

1983

34th International Science Fair
Albuquerque, New Mexico

Paul Anderson

302 Reed Hall NDSU
Fargo, ND 58105

Underwood High School
"A Comparison of the Relative Strength of Cement and Fly Ash Used in Concrete"

Lisa Ehlis

New England, ND 58647

St. Mary's High School (New England)
"Hemisphericity: Determination and Reversal Pertaining to Visual, Audio, Emotional, Tactile and Small Motor Skills"

Robert Faser

801 16th Ave. S.W.
Minot, ND 58701

Minot High School
"Time Travel"

Ron Gallagher

1101 1st Ave. South
Fargo, ND 58102

Jamestown High School
"Engineering Bicycles for Efficiency"

Geroge Gassner

The Open University/Biology Dept
Walton Hall
Milton Keynes
MK7 6AA
England

Fargo North High School
"Placental Hexokinase"

Tami Hall

241 S. Weible NDSU
Fargo, ND 58105

Jamestown High School
"Genetic Transformation of Bacillus Subtilis 168 tr"

Joan Hruby

R.R. #1 Box 94
Wilton, ND 58579

Wilton High School
"Biological Studies of Nitrogen Fixing and Antiobiotic Producing Microorganisms on Legume and Non-Legume Plants"

Christine Hugelen

South Wieble Room 258 NDSU
Fargo, ND 58105

Maddock High School
"Production of Beta-Lactamase Using Penicillin G on Streptococci"

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Denise Jallo

Fordville, ND 58231

Fordville High School
"Successional Changes Occurring in Various Nutrient Media"

Steve Pierson

Box 1204 Concordia College
Moorhead, MN 56560

Minot High School
"The Fourth Dimension"

Shari Steinwand

2508 8th St. North Apt. 3
Fargo, ND 58102

Belfield High School
"Lichens Used as Air Pollution Detectors"

Nancy Ann Towarnicky

Fessenden, ND 58438

Fessenden High School
"Dutch Elm Disease: Diagnosis and Environmental Effects"

Mary Beth Towarnicky

G 41 W Comstock Hall
210 Delaware S.E.
University of Minnesota
Minneapolis, MN 55455

Fessenden High School
"Isolation of the Y Chromosome Sperm for Sex Determination"

Kevin Urdahl

PL-1556 Concordia College
Moorhead, MN 56560

Jamestown High School
"Investigation of Bacterial Symbiosis in Sarcophaga bullata

Lisa Verwest

R.R. #1 Box 66
Finley, ND 58230

Finley/Sharon High School
"Effects of the Placement of Fertilizer in Relation to the Seed at Different Seeding Depths"

Kevin Zikmund

Forest River, ND 58233

Fordville High School
"Population Dynamcis of Yeast"

1984

35th International Science Fair
Columbus, Ohio

Karen Anderson

R.R. 2 Box 15
Scranton, ND 58653

Scranton High School
"Estrous Synchronization Comparisons"

Paul Anderson

302 Reed Hall NDSU
Fargo, ND 58105

Underwood High School
"The Effect of Fly Ash on Concrete"

Brad Ashton

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Williston High School
"Electrochemical Utilization of Oilfield Waste Water"

Janna Charrier

611 West Pine Circle
Bottineau, ND 58318

Bottineau High School
"A Burning Issue: Flame Retardation"

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Paul Durbin

Rt. 5 Box 356
Devils Lake, ND 58301

Devils Lake Central High School
"An Intriguing Little Plant"

Lori Egly

217 Bek UND
Grand Forks, ND 58202

Belfield High School
"The Effect of Vitamin A on Laboratory White Mice"

Jane Gemmil

Fordville, ND 58231

Fordville High School
"Herbicidal Influence Upon Soil Bacteria"

Joan Hruby

R.R. #1 Box 94
Wilton, ND 58579

Wilton High School
"Biological Studies of Nitrogen Fixation and Antibiotic Producing Microorganisms on Legume and Non-Legume Plants: Phase II"

Mark Olerud

305 Churchill Hall NDSU
Fargo, ND 58105

Wahpeton High School
"Holography"

Dean Richtsmeier

R.R. Box 110
Galesburg, ND 58035

Clifford/Galesburg High School
"How Should Iron Be Injected in Swine?"

Pat Dziuk

Box 158
Underwood, ND 58576

Underwood High School
"Frequency vs Direct in the Transfer of Data Using Fiber Optics"

Gabriel Flynn

520 1st Avenue North
Jamestown, ND 58401

Jamestown High School
"The Fourth Dimension"

Gary Hall

Sioux Falls College Burgess Room 112
Sioux Falls, SD 57105

Lisbon High School
"The Effects of Alcohol on Brain Activity"

Larua Hruska

126 North Weible NDSU
Fargo, ND 58105

Jamestown High School
"Genetic Recombination Through Conjugation"

Jill Rasmussen

Box 1241 Concordia College
Moorhead, MN 56560

Maddock High School
"The Effects of Chemotherapeutic Agents on Pathogenic Bacteria"

Melanie Urdahl

1530 6th Ave. S.W.
Jamestown, ND 58401

Jamestown High School
"Medical Assay: The Effects of Acyclovir on IBR Infected Bovine Lung Cells"

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1985

36th International Science Fair
San Diego, California

Janna Charrier

Bottineau High School
"A Burning Issue-Flame Retardation"

Jonathan Cheng

Williston High School
"Spinal Release of Immunoreactive Metenkephalin by Intraventricul B-Endorphin and its analogs in Anesthetized Rats"

Sebastian F. Cherian

Jamestown High School
"Insecticides: Their Effect on the Metabolic Rate of Acheta domestica"

John Craft

Jamestown High School
"Trinomial Expansion"

Jeb Creech

Bismarck Central High School
"Color Perception: The Influence of Computer Language Clue on Color Perception"

Carlton Dick

Sheyenne High School
"Sabermetrics: The Mathematical an Statistical Analysis of Basebal Records"

Darla Duval

Lisbon High School
"The Transfer of Pheromones Between Homo sapiens"

Lisa Ehlis

St. Mary's High School (New Englan
"Developmental Comparison Between Perception Abilities and Long-t Memorization ability in Left an Right Handed Children"

Jim Haberstroh

Mott High School
"Zea mays, Can It be Grown As A Profitable Cash Grain Crop in Southwestern North Dakota?"

Joan Hruby

Wilton High School
"Biological Studies of Nitrogen Fix Antibiotic Producing Microorgan on Legume and Non-legume Plants Phase II."

Chad Kainz

Jamestown High School
"Air Quality Control: Indoor"

John Miller

West Fargo High School
"The Ecological System of the Pediocetes phasianellus"

Janet Rasmussen

Maddock High School
"The Effects of Antibiotics and Antimetal on Pathogenic and Non-pathogenic Bacteria. The Use of Antimetabolites as an Insecticide Agent"

James Richtsmeier

Clifford/Galesburg High School
"Importance of Sow Hematocrits"

Chad Thorlakson

Cavalier High School
"The Wagtail Machine"

Melanie Urdahl

Jamestown High School
"The Effect of Thymidine on Acyclovir's Mode of Action"

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